

**THE IMPACT OF CUSTOMER RELATIONSHIP
MANAGEMENT ON CALLER SATISFACTIONS IN
CUSTOMER CONTACT CENTERS: EVIDENCE FROM
MALAYSIA**

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**The Impact of Customer Relationship Management
on Caller Satisfaction in Customer Contact Centers:
Evidence from Malaysia**

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**A thesis submitted to Othman Yeop Abdullah
Graduate School of Business, College of Business
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Aliyu Olayemi Abdullateef

ABSTRAK

Kajian sedia ada telah menunjukkan bahawa pengurusan perhubungan pelanggan (CRM) sebagai memberi peluang kepada para pelanggan dalaman dan luaran organisasi dalam menjelajah maklumat penting melalui integrasi sistem telefon syarikat, kumpulan sembang, respon suara Interaktif, penghantaran faks, elektronik pertukaran data, komunikasi suara melalui laman web dan e-mel sentuhan akan menghasilkan kepuasan pelanggan untuk pembelian produk baru, membantu dalam meningkatkan jualan dan jualan antara rangkaian dan mencipta kesetiaan pelanggan, nilai dan keuntungan. Walaupun semakin besar pengakuan pentingnya CRM, sangat sedikit kajian telah difokuskan pada kesan daripada aplikasi CRM terhadap prestasi perhubungan dengan pelanggan dalam pusat kawalan.

Penyelidikan empirikal ini menjelajah hubungan antara dimensi CRM, resolusi panggilan pertama, kualiti perkhidmatan yang dirasakan dan kepuasan pemanggil dalam kawalan dalaman pusat panggilan. Kerangka konseptual yang dibangunkan berdasarkan kajian sedia ada dan maklumat yang diperolehi daripada wawancara awal dengan pengurus pusat panggilan. Model kajian adalah meliputi kunci pembinaan CRM, orientasi pelanggan, organisasi CRM, pengurusan pengetahuan dan teknologi yang berpusat CRM dan juga meneliti kesan dari dimensi pada resolusi panggilan pertama (FCR), kualiti perkhidmatan yang dirasakan dan kepuasan pemanggil. Paling penting adalah, FCR dan kualiti perkhidmatan yang dirasakan dianggap sebagai anteseden penting bagi kepuasan pemanggil. Dalam penelitian kuantitatif, kajian terhadap 168 pengurus pusat panggilan di Malaysia dianalisis melalui model persamaan struktur yang memberikan tahap respons secara keseluruhan 43.3%. Penemuan kajian menunjukkan bahawa dari empat hipotesis positif antara dimensi CRM dan kepuasan pemanggil, tiga daripadanya disokong. Penemuan juga menunjukkan bahawa resolusi panggilan pertama (FCR) mempunyai pengaruh signifikan terhadap kepuasan pemanggil. Manfaat utama bagi para pengamal dan ahli akademik akhirnya dibincangkan dalam implikasi teori dan praktikal, manakala satu bidang kajian yang baru disyorkan untuk para penyelidik melaksanakannya di masa depan.

ABSTRACT

Available literatures have established customer relationship management (CRM) as giving opportunity to both internal and external customers of an organization in exploring critical information through the integration of company's telephone system, chat groups, Interactive voice response, facsimile transmission, electronic data interchange, voice over internet, web sites and e-mail touch points that will result in satisfying customer self services for new product purchases, assist in up-selling and cross selling and creating customer loyalty, value and profitability. Despite the enormous increasing acknowledgement of CRM importance, very little studies have focused on the impact of CRM applications on inbound customer contact center performance.

This empirical research explored the relationship between CRM dimensions, first call resolutions, perceived service quality and caller satisfactions within the inbound call centers. A conceptual framework was developed based on the extant literatures and information that were obtained from initial interviews with call center managers. The research model incorporated key CRM constructs; customer orientation, CRM organization, knowledge management and technology based CRM and also investigated the impact of these dimensions on first call resolution (FCR), perceived service quality and caller satisfaction. Importantly, FCR and perceived service quality were considered as critical antecedents to caller satisfaction. In this quantitative study, a survey of 168 call center managers in Malaysia was analyzed through structural equation modeling, constituting an overall 43.3% response rate. The research findings indicated that out of the four hypothesized positive relationship between CRM dimensions and caller satisfaction, three were supported. The findings also indicated that first call resolutions have significant influence on caller satisfactions. Key benefits for practitioners and academia was finally discussed under the theoretical and practical implications, while necessary suggestions on new area of research were recommended for future researchers.

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LIST OF ABBREVIATIONS

CRM:	Customer Relationship Management
CO:	Customer Orientation
CRMO:	CRM organization
KM:	Knowledge Management
TBCRM:	Technology Based CRM
FCR:	First Call Resolution
PSQ:	Perceived Service Quality
CS:	Caller Satisfaction
SQM:	Service Quality Measurement
CCAM:	CRM and Contact Center Association of Malaysia
CA:	Comparative Advantage
SEM:	Structural Equation Modeling
CSRs:	Customer Service Representatives
EFA:	Exploratory Factor Analysis
CFA:	Confirmatory Factor Analysis
KMO:	Kaiser-Meyer-Olkin
MSA:	Measure of Sampling Adequacy
VE:	Variance Extracted
AVE:	Average Variance Extracted
GFI:	Goodness-of-Fit Index
RMSEA:	Root mean square of approximation

LIST OF APPENDICES

Appendix No.	Title of Appendix
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Chapter 1

1.1 Introduction

In the business world today, businessmen have recognized that customers are the core to any successful business. This is because both academic and industry researchers have proven that every business's success depends greatly on the effectiveness of such companies in managing its relationships positively with the current and potential customers (SQM, 2007; Brady, 2001; Berry, 1995 & 1983). Due to this unavoidable phenomenon, most organizations have been making it a must to integrate their team of managements and employees into knowing and practicing customer orientated approach (Dean, 2009; 2007; 2004; McNally, 2007; Sin, Alan and Frederick, 2005; Roland and Werner, 2005; Kohli, Jaworski and Kumar, 1993; Narver & Slater, 1990).

Efforts in understanding how managers could effectively establish and maintain long term positive relationships with their customers have led this current study into understanding the term "Relationship paradigm". As referred, relationship paradigm have been argued as all activities that are directed towards the establishment, development and maintaining successful relational exchanges between an organization, its customer and suppliers (Aihie & Bennani, 2007; Gummesson, 2004; Berry, 1995). This concept of relationship interfaces is centered on where and how individuals and organizations exchange information

whether internally as well as externally (Berry, 1983). It empirically means an organization's ability in getting in touch with both the internal and external customers in responsive and flexible manners. But in practice, it has been argued that there is a wide gap between what organizations does, and what are most desirable for them to do (McNally, 2007; Gummesson, 2004; Ford, 1980).

Following the trends of how best to acquire, satisfy and retain both the current and potential customers emancipated into the emergence of customer relationship management (CRM), a concept that is said to derive its popularity since 1990s (McNally, 2007; Sin et al., 2005; Yim, Anderson and Swaminathan, 2005). CRM is said to offer a long term changes and benefits to businesses that choose to adopt it, because it enables companies to successfully interact with their customers in a dynamic and profitable manner (Aihie and Bennani, 2007; Adam and Michael, 2005; Gummesson, 2004; Sin et al, 2005).

Despite many literatures that have argued in favor of the enormous opportunities that CRM is availing companies through maximization of customer's information in making quick and intelligent business decisions that will resolve issues and provide efficient service to the respective customers (Soon, 2007; Rajshekhar et al., 2006; Adam and Michael, 2005). Yet, there are reliable evidences from prior marketing researches and industry reports that in reality contact centers are failing to realize their targeted actual potentials in helping organizations to achieving the goals of providing the desired levels of caller satisfactions (Centerserve, 2010; Callcentre.net, 2008; Feinberg, Leigh, Rajesh and IkSuk,

2002; Miciak and Desmarais 2001, Feinberg, Kim, Hokama, Ruyter and Keen, 2000).

1.2 Background of the study

The researcher's motivation for this research could be divided into two trends, first is the unique role that CRM is playing in the achievement of relationship marketing objectives and the implementation of resource based approach within the contact center industry (Yueh, Lee and Barnes, 2010; Dean, 2007; McNally, 2007; Yim et al., 2005). Second is the practical experience that the researcher has obtained as a former professional customer service consultant with a multinational company that made use of modern CRM inventions such as contact centers, online surveys, web-based self service, configuration support, mobile CRM solutions etc. Many of these new inventions are mediums to efficiently search, communicate, share and use information in economical ways that are not possible in the traditional call center that only made use of telephone system (Yueh et al., 2010; McNally, 2007; Feinberg et al., 2000). This is because it has been established that the modern day call centers is a convenient and cost effective means through which firms can efficiently keep in contact with their current and potential customers at profit (Coltman, 2007; McNally, 2007; Feinberg et al., 2000).

These modern contact centers have been argued as more efficient than the traditional call centers that primarily depend on telephony based equipments

(called the standard PABX/ACD) that generally aggregates all the incoming calls, distributes each calls to a group of available customer service representatives (CSR) also called “Agents” and queues the remaining calls when CSR are busy (McNally, 2007; Eric et al., 2006; Kode et al., 2001). Available evidence have shown that most of the existing call centers are under serious pressure to reduce their costs of operations, thereby leading them to exploring best alternative means of customer contact that would not be too labor intensive as compared to the existing traditional call centers (Teehan & Tucker, 2010; Dean, 2004; Feinberg et al., 2002; Kode et al., 2001).

Good examples among the multinational call centers are the Fortune 500 companies that are estimated to be operating on average 30 different call centers each (SQM, 2005). Thus, the call center industry is said to be vast and currently rapidly expanding in terms of both workforces and its economic scope. For example, industry report have estimated that not less than 70% of all the customer business interactions are now occurring via call centers and that at least \$700 billion worth in goods and services were sold via the call centers and contact centers in 1997 (SQM, 2005). What is important is that recognized industry reports have established that these figures have since been expanding at 20% annually (Callcentre.net, 2008; SQM, 2005). It was equally established that over three percent of the United States’ working population are currently employed in call centers/contact centers.

Nonetheless, the above evidences have established that the primary objectives of the call centre operations are customer care services designed towards the achievement of a long term customer satisfaction relationships. Observably, academic literatures such as Dean (2008; 2004), McNally (2007), Roland and Werner (2005), Feinberg et al (2002; 2000) and industry reports like SQM (2005) and Callcentre.net (2008; 2003) have all criticized most of the organizations operating contact centers as too focusing on things that are easy to measure (e.g. service level, average talk time, average after call work time, average handling time, call per period, average abandonment rate, average speed of answer, average time in queue, percentage of calls blocked, adherence to schedule, employee turnover rate) instead of what is important to measure (e.g. perceived service quality, first call resolution, caller satisfaction etc.) and for focusing on the quantity of calls instead of the quality of such calls (Bhimrao and Janardan., 2008; Soon, 2007; Roland and Werner, 2005; Dean, 2004; Feinberg et al., 2002).

Important issues such as first call resolution that have been empirically established as positively related to both the operational cost and caller satisfaction are not well researched (SQM, 2007; Feinberg et al., 2002; 2000). Most academic literatures on contact centers/call centers are also said to lack knowledge about the determinants of caller satisfaction (Feinberg et al., 2002; 2000). This is because most of the academic studies on contact centers have primarily focused on employee issues such as staff dissatisfactions and

emotional labors rather than on caller satisfactions (Eric et al., 2006; Feinberg et al., 2002; 2000). As suggested by Feinberg et al. (2002; 2000) that uncovering the significant variables that influences caller satisfactions are very crucial if researchers are to provide necessary guidance for the contact center managers.

1.2.1 Overview of Malaysia Contact Center and CRM Industry

The history of CRM in Malaysia could also be trace to 1990s, but was more pronounced in September 1999, when the customer relationship management and contact centre association of Malaysia (CCAM) were inaugurated (CCAM, 2007). This Association has since been at the forefront of developing the local CRM and contact centre industry in Malaysia. Through joint collaboration of CCAM and the Government of Malaysia, the country's call center industry currently has over 600 Call Centers employing over 25,000 people. Evidence from industry reports have revealed that the revenue growth for technology vendors in this industry has been in the high double digits (CCAM, 2007; Callcentre.net, 2003).

Malaysia is estimated to have one of the most advanced telecom networks equipments among the developing countries, given its ability to utilize modern technologies as fiber optics, wireless transmission, satellite services and digitalization (Callcentre.net, 2008; 2003). Its communication sector has been undergoing a period of consolidation within its existing telecom companies that are competing in the ever increasingly competitive and challenging market

(Callcentre.net, 2008; 2003). Despite the industrial slowdown that occurred after the 1997 economic crisis, Malaysia telecom sector is said to have witnessed a tremendous growth in the last decade (Callcentre.net, 2008; 2003). Notable among the programs that have led to this tremendous growth is the emergence of a new regulatory body called communications and multimedia commission (CMC), meant to oversee the affairs of the telecommunications and broadcasting industries. This very commission was later assigned with the responsibility of overseeing IT industry and also regulating the online services sectors. It was this same CMC Act that paved way for the establishment of the multimedia super corridor (MSC) project, under which the BPO and the share services are structured (CCAM, 2007; Callcentre.net, 2008; 2003).

Following the establishment of MSC project and its inherent anticipated industry growth forecast, notable opportunities started opening to both local and multinational call center vendors and the service providers of many call center technologies in Malaysia (Callcentre.net, 2003). The industry research conducted in 2008 and 2003 by callcentre.net indicates that the greatest numbers of call centers are situated in the banking, finance and insurance sectors. Moreover the study equally reflects that 67% of the available seats in Malaysia call centers are operated by the Telco's, Banking, Finance & Insurance and the Transport & Freight (CCAM, 2007; Callcentre.net, 2003). Equally established in the study is the seat growth which is predicted to rise by 15% per annum, and view in this

light a logical comparison of table 1.1 below will attest to the accuracy of the prediction in the current 25000 employees in the industry.

Table 1.1: Forecasted seat growth

Country	Total Seats 2003	Total Seats 2004	% Growth
China	38,000	53,500	41%
Hong Kong	10,000	10,700	7%
India	96,000	158,000	65%
Malaysia	12,000	13,750	15%
Philippines	20,000	40,000	100%
Singapore	10,000	10,100	1%
Thailand	11,000	12,650	15%

Source: Adapted from Callcentre.net "The 2003 Malaysia Contact Centre Industry Benchmarking Study"

In another recent industry benchmarked study conducted by Sibal (2009), the total cost of operating call centers in Malaysia is argued to be moderately high to attract foreign investors. Out of a scale of 1 to 5, Malaysian call centers were rated 1.7, slightly lower in attractiveness if compared to India and Philippines. This evidence as seen in Table 1.2 has established the need for Malaysian call centers to strategically develop their operational processes so that they can efficiently compete with Philippines and India call centers. Below is table 1.2 that captures the regional comparisons:

Table 1.2: Comparative Strengths and Weaknesses of Offshoring Countries

(Scale of 1 to 5 from U.S. company's point of view: 1= most attractive, 5= least attractive)

Country	Total cost (a)	Vendor landscape	Access to market (b)	Risk profile	Business environment	Quality of infrastructure
Philippines	1.5	4.5	3.5	3.9	3.7	2.8
India	1.5	2.2	3.5	2.7	3.6	3.3
Malaysia	1.7	4.7	3.3	2.2	3.4	2.5
China	1.8	3.7	1.8	3.4	3.6	2.5
Brazil	2.2	3.5	4.2	2.8	3.0	2.0
Mexico	2.2	4.7	2.8	3.5	2.6	2.0
Czech Republic	2.6	4.7	3.5	2.2	3.0	3.0
Hungary	2.6	4.7	3.3	2.3	2.8	3.8
Poland	2.7	4.0	3.3	2.7	3.1	3.0
Russia	3.0	4.5	2.8	3.5	3.3	3.3

Source: Adapted from Sibal, J. V (2009): Strengthening Offshoring in the Philippines: Issues and Concerns

Due to the observed moderately high cost of operation, a typical call center in Malaysia is structure to operate on 6 days per week in 12 hours per day. An estimated 19% of these call centers operate in 24 hours per day and 7 days per week. However, 90% of the Call Centers are said to be handling both the inbound and outbound calls. This is because in blended call center operations, the average agents are expected to be handling 71 inbound calls per day, while the outbound agent handles 40 calls per. Beyond the observed above cost constraints is the high percentage of multilingual agents which serves as a unique strength of Malaysia call center industry. The regional industry benchmark study indicated that an average of 85% agents is multilingual in English, Malay, Cantonese, Mandarin and Hindi languages (Callcentre.net, 2003). This put Malaysia second best after Hong Kong which is 91% in term of agents' multilingual capabilities, ultimately availing Malaysians the opportunities to

servicing international clients such as Singapore, Australia, China, The Philippines, Middle East, USA etc.

1.3 Problem Statement

It is arguable that both academic literatures and industry reports have established the importance of customer relationship management in marketing activities, specifically in the customer contact centers where it has helped in digitalizing staff's knowledge about customers' critical information through computer telephony integration, fax, email, web chatting etc (Dean, 2009; 2007; Sin et al., 2005; Yim et al., 2005; Roland and Werner, 2005). While this current study cannot disconfirm the available arguments in favor of CRM applications, there are reliable data that shows a range of major issues that is affecting Malaysian contact centers such as poor technology, shortage of skilled employees, high abandonment rate, high average speed of answer, low first call resolution, low quality assurance program, employee job dissatisfaction, high attrition rate, high cost of operations, and customer dissatisfaction (callcentre.net, 2008; 2003). Tables 2.1, 2.2 and 2.3 in chapter two of this study presents the region industry benchmark findings that aptly depict the low performing of Malaysia contact centers as against best industry practices.

Disappointedly, despite the enormous increasing acknowledgement of CRM importance, very little studies have focused on the relationship that exist between CRM applications and caller satisfaction within the customer contact center

industry (Soon, 2007; Bang, 2006; Sin et al., 2005; Yim et al., 2005). In support of the emphasis above are ample of evidences provided by several sources on the severe customer dissatisfactions with contact centre services across the globe (Callcentre.net, 2008; 2003; SQM, 2007; Feinberg et al., 2002; 2000; Miciak and Desmarais, 2001), and that the major problems are stemming from factors such as lack of established CRM organization, customer orientations, knowledge management, and the technology based CRM (Yueh et al., 2010; McNally, 2007; Wang et al., 2006; Bang, 2006; Sin et al., 2005; Yim et al., 2005), first call resolution (SQM, 2007; Feinberg et al., 2002; 2000), perceived service quality (Dean, 2009; 2007; 2005), and employee performance (McNally, 2007; Lee et al., 2006; Roland & Werner, 2005). Nonetheless, within the list of few studies that have been conducted on caller satisfactions, there is one specific operational variable called “first call resolution (FCR)” that has been established to influence caller’s satisfaction (Feinberg et al., 2002; 2000; Miciak and Desmarais, 2001). However Feinberg et al (2002; 2000) empirically argued that FCR is an outcome of a present or previous service encounters, a pure indication that the contact center customers can only evaluate (issues resolved or not and satisfied/ dissatisfied) with contact center service delivery only after they could interpret (perceive) the services. As such, this current study intends to establish the mediating relationships that FCR have on CRM dimensions and caller satisfaction.

Notably, the major theoretical gap in the extant literatures as observed in this study lies in the insufficient research that have established the relationships that exist between CRM applications and caller satisfactions within the inbound units of the contact center models (Yim et al., 2005); and this is despite the available overwhelming empirical evidence that CRM is a strategic tool for acquiring and retaining potential customers, and reducing operational cost (Soon, 2007; Sin et al., 2005; Yim et al., 2005). Thus, both the managers and academics are seriously concerned on the lack of adequate knowledge of what influences and determines caller satisfactions in the contact center industry (Dean, 2009; Anand, 2008; SQM, 2007; Soon, 2007; & Eric et al., 2006; Feinberg et al, 2002; Miciak and Desmarais 2001, Feinberg et al, 2000). This research believes that one of the issues leading to the existing confusion in CRM research is the lack of an agreed definition of what actually constitutes CRM and how the outcomes of CRM are to be determined and measured.

In considering a valid means of tackling the above identified issues, several authors such as Feinberg et al (2000), Roland and Werner (2005), Robinson and Morley (2006), Eric et al (2006) and Dean (2007) have empirically argued in favor of first call resolution as one of the determinants of caller satisfaction. Very important in their discussions are the positive relationships that exist between organizing organization around CRM, knowledge management, customer orientations, technology based CRM and FCR, but unfortunately the findings of Feinberg et al (2002; 2000) have indicated a weak significance between FCR

and caller satisfaction, necessitating the need for further studies that will empirically establish the predicted positive relationship between CRM dimensions as the independent variable and caller satisfaction as the dependent variable.

Following the arguments in support of the above evidences, Dean (2007; 2004) empirically established that there exist a positive relationship between customer orientation, perceived service quality and customer satisfaction (Dean, 2007). Meanwhile, it is observed that the market orientation theory upon which Dean (2007) based her study was largely premised on organizational studies that mainly used customer focus and customer feedback, viewed in this light Dean (2007) recommended for a further study that will use data from both the employees and the customers in investigating and testing the linkages between other important CRM dimensions and caller satisfaction. Also subsumed within the list of scholarly research that have called for further research on CRM constructs within the contact center is McNally (2007) that conceptualized the relationship that exist between customer orientation, technology based CRM and employee job performance. He argued on the need to establish the impact of CRM dimensions on contact center performances, especially within the inbound units where several CRM applications are applied (McNally, 2007).

Based on the aforementioned practical issues (most importantly, caller dissatisfactions in Malaysian call center industry) and existing theoretical gaps,

this empirical study has investigated the relationships between CRM dimensions and its consequences on first call resolution, perceived service quality and caller satisfaction. This study has also examined the mediating effects of first call resolution and perceived service quality on caller satisfaction within the customer contact center industry in Malaysia.

1.4 Research Questions

The following question are based on the issues discussed in the research problem by analyzing the relationships between CRM applications and the practices of contact centers industry in order to find out what actually determines caller satisfaction. These research questions are meant to get a feedback from the managers of customer contact center that interact on daily basis with every unit of CRM applications that would determine Callers Satisfaction.

1. *What is the relationship between Customer Relationship Management (CRM) dimensions and Caller Satisfaction in the Contact Center Industry?*
2. *What is the relationship between CRM dimensions, First Call Resolution and Perceived Service Quality?*
3. *What are the relationships between First Call Resolution, Perceived Service Quality and Caller Satisfaction?*
4. *Do FCR and PSQ positively mediate the relationship between CRM dimensions and Caller satisfaction?*

1.5 Research Objectives

This study is designed to evaluate the role of CRM applications on caller satisfaction within the contact center industry. To simplify this, the researcher has designed the following objectives to capture the research problem and provide answers to the research questions.

- 1. To determine the relationships between CRM dimensions and Caller Satisfaction within contact center industry.*
- 2. To determine the relationships between CRM dimensions, First Call Resolution and Perceived Service Quality in the Contact Center Industry.*
- 3. To determine the relationships between First Call Resolution, Perceived Service Quality and caller satisfaction.*
- 4. To determine whether FCR and PSQ positively mediate the relationship between CRM dimensions and Caller satisfaction?*

1.6 Scope of the study

The focus of this study is to determine what aspect of CRM applications within the contact center industry that determines caller satisfaction. This research is limited to the contact center industry where questionnaires has been distributed

to the respective contact center managers to determine the relationships that exist between CRM dimensions and caller satisfactions within the contact center industry as a strategic part of customer relationship marketing. The researcher has structured this research as a quantitative investigation that was primarily based on survey interview with the selected managers and CRM professionals from the 600 call center firms in Malaysia.

To establish those factors in CRM projects that determine caller satisfaction in the customer contact centers, the researcher has focused on the managers of the contact center firms, because they are the primary users of CRM tools and processes, and also serves as the touch point between the customer, the management and the contact center. Most importantly, the interview questions are structured to capture the manager's opinion on the objective and subjective measures of their CRM applications. The objective measures were based on the managers' individual experiences and opinions on CRM application, while the subjective measures were meant to ask them about the outcome of their customer surveyed on certain performance metrics.

1.7 Significance of the research

Customer contact centers has been chosen as the subject of this study because of the growing awareness of the importance of CRM applications as a key drivers of customer loyalty and profits. As revealed by Eric et al (2006), that customer contact centers' moment of truth depends mainly on agent's courtesy, empathy,

helpfulness, assurance and telephone manners. They emphasized that this positive customer encounter is a key to customer satisfaction and loyalty, because it provides an opportunity for call center's customers with a positive memorable service quality experience.

Customer contact centers are also said to becoming a critical element in global customer relationship management strategy. Also the cost and performance of the customer contact centers are critical to their success. This is because CRM is giving opportunity to both internal and external customers to explore critical company information through the integration of a company's web site, telephone system and e-mail touch points resulting in satisfying the customer's self-service on enquiries, purchases and complaints that eventually lead to value creation, customer loyalty and profitability (Dean, 2007; Eid, 2007; Roland and Werner, 2005; Adam and Michael, 2005; Gummesson, 2004; and Roger and Robert, 2001; and Anton, 2000).

1.7.1 Significance of the Research to the Academics

Through a detailed literature review and empirical findings, this research has contributed to theory with its developed conceptual framework that has empirically established the relationships that exist between CRM applications and caller satisfaction. It has equally availed the academics with the opportunity of the theoretical linkages that exist between CRM dimensions and FCR, with the

mediating influence of first call resolution and perceived service quality on CRM dimensions and caller satisfaction within the contact center industry. Although there are few existing literatures that recognizes that there exist a relationship between CRM and caller satisfaction (Soon, 2007; Eid, 2007; Gummesson, 2004), still this current study does not find any published academic literatures on the relationships that exist between CRM applications and caller satisfaction within the inbound unit in contact center industry (Soon, 2007; Sin et al., 2005; Yim et al., 2005). In addition to this is the main contribution of this research through the identifications of the necessary measurement constructs that can be empirically used in testing the relationship that exist between CRM dimensions and contact center operations such as first call resolution and perceived service quality and caller satisfaction. All these have contributed to theory through the availability of a well informed constructs relationship and subsequently the ability to ease of model predictions.

1.7.2 Significance of the Research to the Practitioners

To the contact center practitioners, this research has further established the importance of CRM as a strategic tool that could be efficiently used by companies to enable their employees make the best use of every contact they had with the customers. Inputs from the determinants of caller satisfaction within the contact center industry have equally served as a strong positive insight for

practitioners in knowing more about their operational processes. Findings from the data on the mediating influence of FCR and perceived service quality could be aptly used by practitioners as alternative solution to the observed industry lapses that was presented in 2003 and 2008 regional industry benchmark study that was conducted by Callcentre.net. Finally, this research has enthusiast inbound contact center management decision making process through its provision of an empirical model upon which CRM applications could be measured.

1.8 Definition of Terms

Customer Relationship Management (CRM): This is organization's ability to efficiently integrate client's factors, people, process, and technology in maximizing positive relationships with both current and potential customers.

Customer Orientation: Customer Orientation has been defined as the degree to which an organization emphasizes on meeting customer needs and expectations in order to establish long-term customer relationships and organization's profitability.

CRM Organization: CRM organization is the alignment of viable business strategies, customer information and technology on the existing organizational structures and cultures, with the primary aim of achieving long-term customer satisfaction and organizational profits.

Knowledge Management: Knowledge Management is a means with which companies capture, organize, manipulate, and share implicit and explicit data with both internal and external users.

Technology Based CRM: Technology Based CRM can be describe as any technology or systems that assist organizations in collecting, storing, analyzing, and sharing both current and potential customers' information in ways that have greatly enhance employees' ability in responding to the needs and request of the individual customers and thereby leading to better ways of attracting and retaining customers.

First Call Resolution (FCR): First Call Resolution is the percentage of the calls that does not requires any further contacts or callbacks to address the same customer's reason for previously calling the organization.

Perceived Service Quality: In the contact center industry, perceived service quality has been defined as the customers' overall assessments of the superiority of a firms' service with respect to its service interactions and the subsequent outcomes.

Caller Satisfaction: Caller Satisfaction is a component of overall Customer satisfaction which could be describe as the psychological concept that captures

the feelings of well-being and pleasure that results from customers' ability to obtain what they hopes for and expects in calling the customer service department of their marketers/service providers.

1.9 Organization of this study

Chapter one introduces the research topic “Customer Relationship Management projects in contact center industry” and argues on the reasons for using managers of Contact Centers in determining the relationship between CRM dimensions as the independent variable, FCR and perceived service quality as mediating variables and Caller Satisfaction as the dependent variable. Also included in it were statement of the research problem, the research questions, the research objectives, scope and limitations of the study, significance of the research and organization of the study.

Chapter two established the underpinning theories, define the core concepts of Customer Relationship Management and offer the theoretical background of customer relationship marketing through a series of literature reviews. A detailed literature review upon which the researcher has developed a theoretical framework for this study in form of summary was equally contained in chapter two.

Chapter three introduced the Research Model and the Hypotheses, with necessary constructs that determines Caller Satisfaction within the contact center

industry. Chapter four introduced the research methodology that was employed in this research, by providing a detailed quantitative approach that was applied. Also contained in chapter four is the research design, population and sampling procedures for the selection of sample size, data collection and discussions of data that has assisted to determine the validity of the research.

Chapter five analyzed and presents the outcomes of the research findings from the empirical data collected. Finally chapter six discussed and made necessary conclusions regarding the research questions and points out the theoretical contribution along with the managerial implications contained in the research. Also included in chapter six are the alternative recommendations as a direction for future research.

Chapter 2

Literature Review

2.1 Introduction

Chapter two comprises of the review of relevant literatures on the origin and evolutions of CRM and types of CRM. Key issues in Malaysia contact center and CRM applications are also discussed. Also included in chapter two is the overview of CRM contact centers, importantly the study's relationships to its businesses, models and services. Finally, this chapter established the related underlying theories of CRM and caller satisfactions, followed with detailed explanations on construct relationships in the research framework.

2.2 Origin and Evolution of customer relationship management

Customer Relationship Management (CRM) is a unique area of marketing that is said to have derived its roots from the technology of sales automation and call centre operations in organization activities since mid 1990s (Yueh et al., 2010; David & Wendy, 2009; Aihie, 2007; McNally, 2007; Richard, 2007; Soon, 2007; Sin et al., 2005). At this particular point in time, industry experts thought merging a customer data from the field, specifically sales records with that of the call centre operations would assist in establishing a detailed interactions with the customers (Berry, 1983). CRM concept was later developed by different user companies through mergers and acquisitions that gave opportunity to a number

of software vendors, with claims of better capabilities that is known today as CRM (Sin et al., 2005).

Going through literatures on early relationship marketing shows that it was designed to capture customer's information about certain preferences that will later be stored in databases. This set of activities is said to have evolved into a one-to-one marketing that can help companies to create more customized offers for their current and potential customers (Aihie, 2007; Berry, 1983). For better efficiencies in the management of this one to one marketing, has led to the creation of a profitable and long-term relationship concept with the customers, now called "CRM" (Aihie, 2007).

CRM is a unit of a bigger marketing management which is the art and science of choosing target markets and building profitable relationships with them by delivering superior customer value and satisfaction (Dean, 2007, Eid, 2007; Adam and Michael, 2005; Kotler and Armstrong, 2004; Gummesson, 2004; and Fox and Stead, 2001). However, many researchers still debate over what should exactly constitute CRM; some says CRM are nothing more than mere software, while others says it is a modern means of satisfying customers' requirement at profit (Soon 2007; Nguyen et al, 2007; and Eric et al, 2006). While different researchers believed that there is no one correct definition of CRM, this research would like to define CRM as "Organization's ability to efficiently integrate client's

factors, people, process, and technology in maximizing positive relationships with both current and potential customers.

All these processes have been argued to have gone through different developmental stages between 1990s and now, where CRM is said to have transformed from a mere web based contact management and information gathering tool to a real customer oriented strategic approach that has enhanced customer experience and automated processes in the global businesses (McNally, 2007; Kyootai and Kailas 2007; and Anton, 2000). Other authors such as Sin et al (2005) argued that CRM is a strategic business process that involves an efficient management of detailed information about current and potential customers channeled through a carefully arranged customer “touch points” that assist in maximizing customer loyalty and minimizing costs. The cost implications are double sided, from both the company and the customers.

On one hand, the customer is able to reduce the cost of traveling to the respective companies to get what they need, while the companies are able to save cost on both their human resources, processes and promotions. To strengthen their argument, Sin et al (2005) explained that whatever orientation that an organization might have put in place, the primary role of marketing management is to create a positive relationship with customers. In one of their analysis, they said that it has been observed that different authors have narrowly defined CRM as a mere customer database management activities (Sin et al,

2005). That there is need for global marketing managers to understand the broader meaning of CRM, which is the general activities of building and maintaining profitable long-term relationships with both current and potential customers.

Given the competitions in the global market, Sin et al (2005) argued that the CRM is a managerial tool that is useful in attracting, retaining and growing both current and potential customers. They emphasized that the key to doing this is by creating superior customer value and satisfaction. They went further to say that a satisfied customer is more likely to be loyal, and a loyal customer would give the company a larger percentage of their business.

Anton (2007) defines CRM as a system which allows both internal and external customers of an organization to critical information through the integration of company's telephone system, chat groups, Interactive voice response, facsimile transmission, electronic data interchange, voice over internet, web sites and e-mail touch points that will result in satisfying customer self services for new product purchases, assist in up-selling and cross selling and creating customer loyalty, value and profitability. Anton points out the ease of customer assess have significantly improved over the years, that evidences are emerging that the companies which are easily accessible anywhere at anytime would be the most preferred to deal with by customers.

2.2.1 Types of CRM

As presented above that customer relationship management (CRM) is a broad term that covers concepts and terminologies that are used by companies to manage their relationships with customers; which also includes activities such as capturing, storing and analyzing customer information for better decision making (David and Wendy, 2009; Bhimrao and Janardan, 2008; Eid 2007; Sin et al, 2005). There are three aspects of CRM which can each be implemented in isolation from each other (Fox and Stead, 2001):

- Operational CRM: This involves the automation of customer support processes, which include company's sales or service representative services.
- Collaborative CRM: These are direct communication with customers that does not include a company's sales or service representative e.g. self service via websites.
- Analytical CRM: This involves the analysis of customer data for a broad range of purposes within the customer contact center industry e.g. planning, budgeting, forecasting, evaluations, bench marking etc (Roland and Werner 2005; Fox and Stead, 2001).

Below is figure 2.1 that diagrammatically presents the operational linkages between analytical and operational CRM, with more emphasizes on the inbound unit that serves as the primary unit of interest in this study.

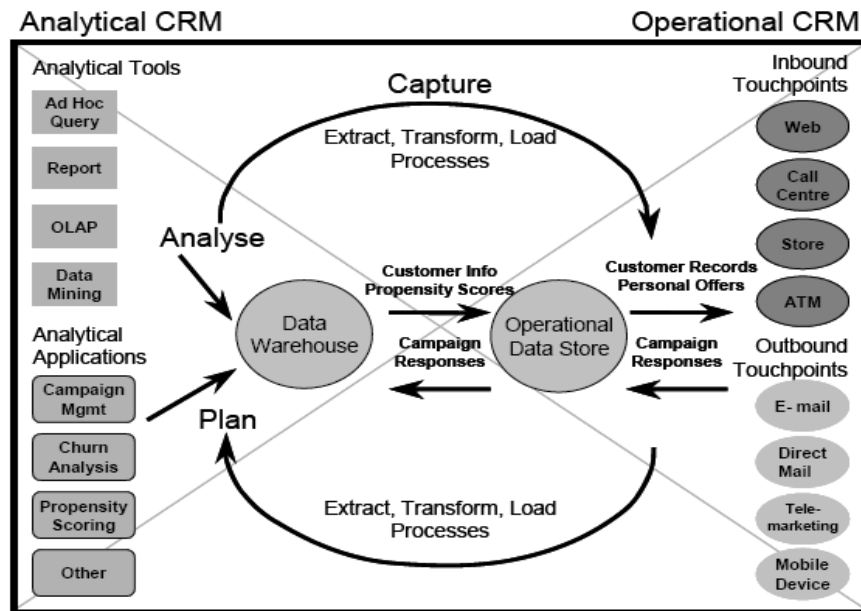


Figure 2.1: Operational Linkages between Analytical and Operational CRM

Source: Adapted from The Data Warehousing Institute "TDWI" (2009), page 81.

2.2.1.1 Operational CRM

In customer contact centers, operational CRM is used to provide support for front office business processes, such as sales, marketing and customer services (Fox and Stead, 2001). For this current study, operational CRM is very important to this study because secondary data upon which first call resolution and caller satisfactions are measured were obtained from managers via call center data base. Importantly, through operational CRM each customer interaction is generally added to such customer's contact history in the company, and the company's staff can retrieve this information from the database when necessary (Fox and Stead, 2001). One major benefits of this contact history is that it avail the customers the opportunity to interact with different people or different contact channels in the company over a given period of time without having to repeat the

same history of their interaction when calling back. Consequently, many contact centers use different kinds of CRM software to facilitate their Agents functionality (Roland and Werner 2005).

2.2.1.2 Collaborative CRM

On the other hand, the collaborative CRM on its part is used to cover the direct interaction with customers, for a variety of different purposes, such as giving feedbacks and reporting issues (Fox and Stead, 2001). These interactions can be through a variety of channels, such as emails, automated phone (automated voice response AVR), internet chatting, SMS or mobile emails. For this study, collaborative CRM falls under technology based CRM which is one of the independent variables in the research framework.

Notably, this technology based CRM have been argued as a unique medium through which customers could efficiently provide reliable feedback through phone calls, chatting, SMS or mobile email relative to alternative traditional channels (Fox and Stead, 2001). Part of these benefits in collaborative CRM was linked with the ease of use of such feedback channels. In support of this argument is a study on contact center which showed that if consumers cannot get through to customer service centers, 31% would hang up and try going to any other available competitors. And some 24% of consumers will eventually give up, a scenario that will further led to increasing numbers of unsatisfied customers (Coltman, 2007).

In addition to the above, it was found in a separate study that a bad experience with a customer contact centre will lead to a 56% of callers stopping doing any business with such organization in question (SQM, 2007). Other empirical studies have equally shown similar findings; with specific reference to a research that was conducted by Soon (2007), which showed that only 4% of unsatisfied customers will complain to the company, whereas the remaining 96% of the consumers will go to the nearest available competitors (Soon, 2007).

2.2.1.3 Analytical CRM

As explained above, an analytical CRM analyses customer data for a variety of purposes which includes but not limited to:

- Efficient in designing and executing targeted marketing campaigns in order to optimize marketing effectiveness
- Very reliable in designing and executing both tactical and strategic customer campaigns, which includes customer acquisition, cross-selling, up-selling, and customer retention programs.
- Good for analyzing customer behaviors that will aid product and service decision making processes (e.g. new product development, pricing, promotion, distribution etc)

- For management decisions making process such as sources and application of funds, financial forecasting, customer profitability analysis, profit impact of marketing strategies.
- Predicting and forecasting of anticipated customer satisfaction and defection (Fox and Stead, 2001).

The aforementioned reasons are very important to how managers can effectively implement CRM dimensions within their operations, making analytical CRM a good input to the impact that CRM has on call center performances.

2.2.2 Key Issues in Malaysia Contact Center and CRM applications

Just like every other world class call centers, the obsessive activities of Malaysian call centers in maintaining a high utilization rates so as to minimize cost have been leading to high rate of agent turnovers (Callcentre.net, 2008; 2003). As established that one of the greatest negative impacts of extreme high utilization is employee burnouts, which in turn leads to turnover (Callcentre.net, 2003). Most literatures have established that turnover is the most costly issue that any call center can face (Dean, 2009; 2007, Roland and Werner, 2005). The findings presented in table 2.1 below aptly depict that average agents' turnover in Malaysia is 18% per annum, making it third (3rd) highest in the region. Following this, some practitioners have argued that higher agent turnover would have negative impact on CRM applications, foreign direct investment and outsourcing

of contact centers to Malaysia as envisaged by the Malaysian government and industry practitioners (CCAM, 2009; Callcentre.net, 2008; 2003).

Table 2.1: Malaysia Agent Turnover

Country	Agent Turnover (% per annum)
China	10%
Hong Kong	10%
India	22%
Malaysia	18%
Philippines	13%
Singapore	19%
Thailand	11%

Source: "The 2003 Malaysia Contact Centre Industry Benchmarking Study, by Callcentre.net"

Similarly in the study is table 2.2 which highlights that the average tenure of an agent in Malaysia is relatively low at 16 months per contract, with an estimated 30% of the agents moving to other competing call centers in need of high skilled agents (Callcentre.net, 2008; 2003).

Table 2.2: Malaysia Agent Tenure measured in months

Country	Agent Turnover (Months)
China	17
Hong Kong	18
India	24
Malaysia	16
Philippines	19
Singapore	27
Thailand	37

Source: "The 2003 Malaysia Contact Centre Industry Benchmarking Study, by Callcentre.net"

As observed in the industry benchmark study, agents in Malaysia call centers only receive 13 days training per year. While in all, only 14% of the call centers in Malaysia provide its agents with the required opportunities to attain the industry recognized call centre/contact centers qualifications (Callcentre.net, 2008; 2003). In sum, this is contrary to the global industry standard as established by SQM (2005) that a 1% improvement in call center employee satisfaction will equals approximately to a 2% improvement in call center customer satisfaction (SQM, 2005).

Similarly table 2.3 below shows the industry average speed of answers to incoming calls was found to be 66 seconds in Malaysia, which is practically outside best industry practices. Eventually leading to 24% observed average call abandonment rate, confirming Malaysian call centers as the lowest performing within the countries benchmarked in the region.

Table 2.3: Malaysia Quality Assurance Programs

Country	Abandonment Rate (%)	First Call Resolution (%)	Average Speed of Answer (Secs)
China	5%	70%	8 secs
Hong Kong	9%	78%	NA
India	6%	85%	36 secs
Malaysia	24%	NA	66 secs
Philippines	9%	68%	17 secs
Singapore	11%	73%	16 secs
Thailand	10%	68%	19 secs

Source: Adapted from Callcentre.net "The 2003 Malaysia Contact Centre Industry Benchmarking Study"

Furthermore, the study equally showed that very negligible percentage of the surveyed Malaysian call centers are serious about the impact of measuring their first call resolution (FCR). Whereas evidence from both theory and industry reports have established FCR as one of the best determinant of caller satisfaction and key performance indicators within the contact center industry (SQM, 2005; Call center.net, 2003; Feinberg et al., 2000). Good among these findings is the SQM (2005) that empirically argued that a 1% improvement in call center customer satisfaction will equals to a 1% improvement in call center first call resolutions mainly because FCR is said to be so closely correlated to caller satisfaction.

2.2.3 Advantages and problems associated with CRM

Considering both theoretical and practical arguments in favor CRM as an important aspect of the existing marketing theories (David and Wendy, 2009; Sin et al., 2005), with evidences of benefits accruing from investing in CRM (Eid, 2007), combined with CRM's availability in today's market (Sin et al, 2005), notably CRM still continues to face different issues right from the conceptual stage to the implementation and post implementation stage (David and Wendy, 2009; Nguyen et al, 2007, Sin et al, 2005). A large percentage of CRM authors and some commercial research scholars have published relevant literatures on the general implementations of CRM applications and technologies, with more specific focus on the impact of lack of commercial benefits that ought to be gained from substantive CRM investments (David and Wendy, 2009). Part of the

recommendations is that to achieve successful CRM technology implementations and adoptions, each firm needs to be visible, concentrate and establish a long term senior management commitment with significant organizational change that is in accordance with the intended CRM system, if they expect to reap the full benefits (Sin et al., 2005).

However it is argued by some scholars that the underlying expectation of any CRM technology to be implemented is to achieve customer loyalty and improve the corporate profitability, but contrary to this expectations, David and Wendy (2009) in their findings quote a case study where well over “55% of all the existing CRM projects don’t produce the expected results” (David and Wendy, 2009). Also in another survey of 1,500 companies conducted by The Data Warehousing Institute, the results shows that 91% of the companies have implement CRM solution, whereas the results indicates that 41% of these companies with CRM projects have start to experience series of implementation problems (TDWI, 2009).

The researcher will like to emphasize that given the extant literature reviews, CRM “successes” are not clearly defined both in IT or marketing literatures. But as noted, this could partly be attributed to the difficulties that are inherent in the lack of globally accepted definition of CRM.

2.3 Overview of the CRM Contact Centers

Relevant literatures on contact center industry have argued in favor of CRM as a concept that the entrepreneurs should endeavor to implement because of its strength in ensuring good returns on relationship investments (Yueh et al., 2010; Soon, 2007; Sin et al., 2005). In any CRM call centers, both the customers and the firms can effectively communicate via a multiple channels such as: call, faxes, live chat, and e-mails. This is because a contact center is generally a part of an organization's overall customer relationship management (Soon, 2007).

According to Kode et al (2001), the contact centers are said to possess the potential of becoming the hub of any successful customer relationship management strategies and the fulcrum for such organizations. It has been established that the contact centers can only continue to increase in its operational importance as more and more of the companies are focusing on CRM applications (Soon, 2007). However, with the contact centers becoming an important critical touch point for most of the modern organizations, some literatures have argued on the need to investigate and understand the influence of human and technology applications within the industry (Dean, 2009; 2007; Anand, 2008; Stephen and Michael, 2008; Florian et al., 2001; Feinberg et al., 2000). Notably it has been emphasized that the numerous CRM software have been assisting in integrating all the forms of customer contacts into a central database where organizations can retrieved, viewed and worked on it (Sin et al.,

2005). CRM software applications are efficient in tracking customers' issues from the original point of contacts through to the resolution stage.

It is no doubt that CRM contact centers are helping firms in realigning their entire activities around the current and potential customers (Aihie and Bennani, 2007). Thus making it an effective strategic business initiative with which firms can maintain long-term relationships with the customers (Adam and Michael, 2005). Below is figure 2.2 that highlights the major communication channels within the contact centers:

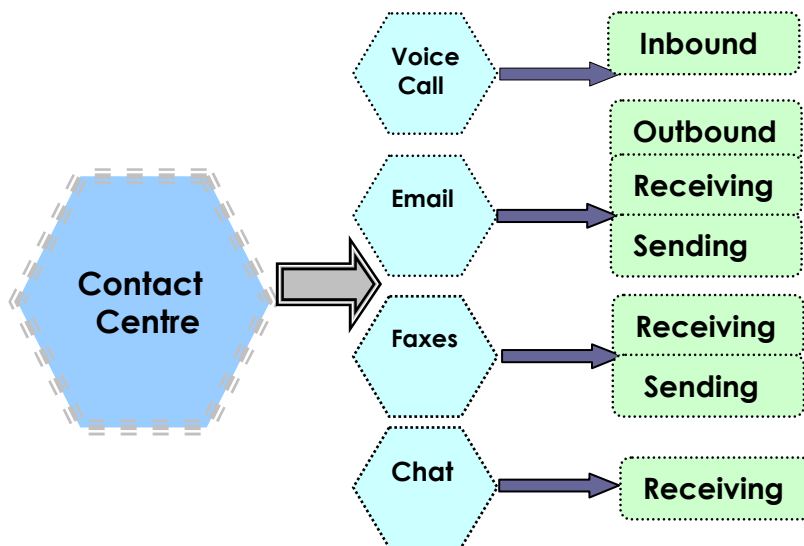


Figure 2.2: Contact centre and communication channels

Source: Authors' computation

2.3.1 Contact Centre Businesses

Both theory and practice have established the 3 main types of businesses that a contact centre may engage in (Bhimrao & Janardan, 2008; SQM, 2007; Callcentre.net, 2003). Under this section, this research has discussed on the various aspects of contact centre business. To do this, below is figure 2.3 that depict a simple model to indicate contact center businesses (Dean, 2007; Bhimrao and Janardan 2008).

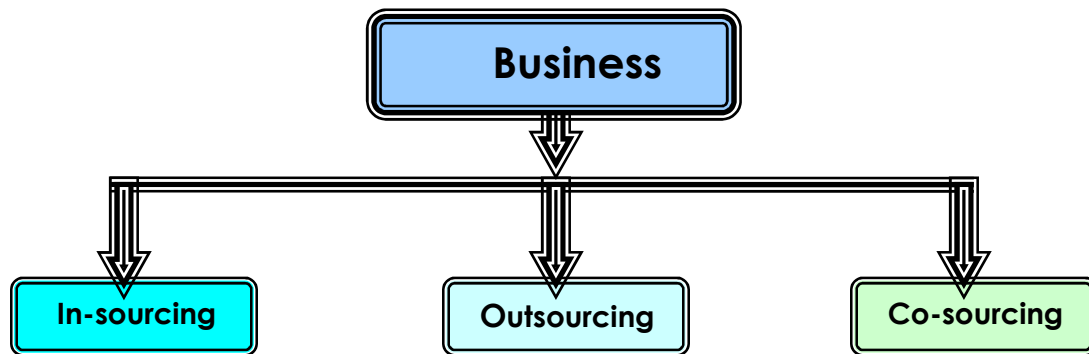


Figure 2.3: Contact Centre Business

Source: Authors' computation

2.3.1.1 Out-Sourcing

According to Bhimrao and Janardan (2008), Outsourcing is an effective business strategy that will assist in the overall improvement of Business performances and efficiency. Bhimrao and Janardan (2008) define “Outsourcing” as a situation where organizations delegate their non-core functions or operations to an external organization, so that that part of its operations could be efficiently handle by specialist. Good example is Nokia global customer contact

center, GE Money contact center, Singapore telecommunication contact center etc that are all outsourced to Malaysia and strongly constitute one of the respondents in this study. Mainly in outsourcing, the external organization would directly take over the management of the outsourced function (Stacey, 2006). Part of practitioners' and researcher's arguments in favor of out-sourcing is that organizations can take advantage of outsourcing parts of its operation especially in times of trouble without disaffecting customers or reducing its quality performances (Frost & Sullivan, 2009; Bhimrao and Janardan, 2008; Stacey 2006).

2.3.1.2 In-Sourcing

In-sourcing is a type of business in the contact center industry that involves an organization delegating parts of its operations or jobs to a specialized team or single entity within its own infrastructure, mainly because the other company is proficient in providing such services. Notable in Malaysia is Maxis and Petronas contact centers that are in-sourced to Scicom Msc Berhad within their company infrastructure. These two companies are part of the primary respondents in determining the impact that CRM has on caller satisfaction in this current study. Meanwhile, it is good to emphasized that the trend towards in-sourcing in Malaysia is said to have increased since the year 2006 (CCAM, 2009). Many of the organizations who have been dissatisfied with outsourcing have also been confirmed to have been moving towards in-sourcing (CCAM, 2009; Bhimrao and Janardan 2008).

In support of the arguments above is a recent study which confirmed that there is more work in-sourced than outsourced within the U.S and U.K contact center industry (Centerservice, 2010). This is despite the fact that these countries are said to be the current largest outsourcers in the world. Among the various reasons to which an organization may want to in-source includes targets on improving certain aspect of its operation by utilizing professionals from other companies, while others in-source in order to cut down the cost of manpower and premises (Bhimrao and Janardan 2008).

2.3.1.3 Co-Sourcing

Co-sourcing in the customer contact center refers to the situation where organizations execute a shared services operation centre with an external company. The term co-sourcing is synonymously used with joint venture. Basically, it is a form of long term relationship that practically emphasizes the values of traditional method of partnering rather than vending. Co-sourcing is mostly directed towards the improvement of a business performance (Bhimrao and Janardan 2008). Some of the respondents in this study falls under co-sourcing such as Kavaq, Marcus Evans etc that all mutually worked as business intelligence company targeted at improving corporate performance of businesses. Some of their task includes but not limited to conducting CRM trainings and measurements, customer satisfactions and FCR surveys.

2.3.2 Contact Centre Models

Existing literatures have ascertained that there are 3 types of contact centre models: Inbound, outbound and web-enabled (Centerservice, 2010; CCAM, 2009; Bhimrao & Janardan, 2008; SQM, 2007; Callcentre.net, 2003). Empirically, many types of communication channels could be included in these models (Abdullateef, Mokhtar & Yusoff, 2010d). Mostly all contact centers operate one model but researches have shown that all includes other models in order to be able to support all kind of business (Abdullateef et al., 2010c; Feinberg et al, 2000). Below is figure 2.4 that briefly display the models in contact center industry:

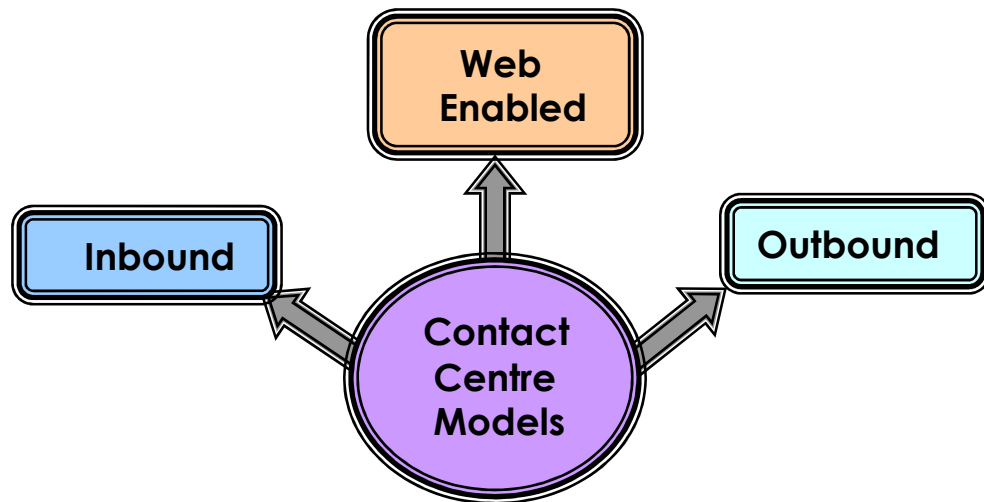


Figure 2.4: Contact Center Models

Source: Authors' computation

2.3.2.1 Inbound

The first model is called Inbound, which also serve as the primary model under which this current study is being conducted in Malaysia. Inbound is a process where the outside world initiates contact to the customer contact centre via voice, email or chatting (Centerservice, 2010; CCAM, 2009; Feinberg et al., 2002). Under this arrangement, most of the customer's do contact the inbound contact centers to either buy or inquire about things like airline tickets, technical assistance on their computers, or for some other reasons that requires their talking the company's customer service representatives (Roland and Werner, 2005; Feinberg et al., 2002; 2000).

Increasingly, recent studies have proved that companies have started looking to inbound call centers for a proactive customer service that would assist in increasing customer satisfactions, FCR, complaints reductions, conflict resolutions, cross-selling and up-selling (Teehan & Tucker, 2010; Eric et al, 2006; Timothy et al., 2006). It gives opportunity to answer any type of enquiry via calling a specific number. Other authors have equally argued on the importance of specifically using inbound contacts to achieving first call resolution and resolving customer's conflicts (Whiting & Donthu, 2009; Aihie & Az-Eddine, 2007; SQM, 2007).

Although the efficiency of this type of contact centre model is constrained by the centre's capability of managing its demand and capacity management (Makarem et al., 2009; Lee et al., 2006; Kode et al., 2001). This is because determining the control of how many calls or emails to receive is outside the call center management's capability (Abdullateef et al., 2010d). The entire process is more of probabilities and forecasting of anticipated contacts base on the trend of historical data. In the case of a sudden increase in calls, then customer need to stay long time to get CSRs which may lead to customer dissatisfaction (Abdullateef et al., 2010a; Feinberg et al, 2000).

2.3.2.2 Outbound

Any customer contact center that is responsible for initiating contact to the customers via voice call, email, chatting etc. is referred to as an outbound contact center (Eric et al, 2006). One of the primary roles of an outbound customer contact center is by serving their client through calling the client's customer to promote their products or services such as opening bank account, credit card promotion, insurance etc (CCAM, 2009; Frost & Sullivan, 2009). In the course of making an outbound call, the outbound customer contact centers are in a way generating sales leads for their client, which in return will assist in making sales and expanding the existing market segment of the clients (Bhimrao and Janardan, 2008). For this study, outbound contact center is not the primary focus of interest. This is due to available empirical evidence by Yim et al (2005) which

established positive impact of CRM dimensions on customer outcomes within the outbound contact centers.

2.3.2.3 Web Enabled

Any customer contact center that involves the outside world initiating contact via electronic device such as emails, chatting etc. are referred to as web enabled customer contact centre (Eric et al, 2006). To achieve this, the customers normally contact Web enables customer contact centre through their websites to get assistance such as computers, phones, ticketing and other products and services. There are opportunities for customers to request for a web call back from the customer service representatives with detailed customer's information such as name, telephone number and the convenient time the company could call (Bhimrao and Janardan 2008). Available evidence indicates that most of the population under study is making use of web enable model through their emails, fax numbers, websites etc in receiving information from customers (CCAM, 2009; Frost & Sullivan, 2009).

2.3.3 Contact Centre Services

In the customer contact center industry, services are a core strategic business portfolio (Doellgast et al., 2009; Shire et al., 2009; Florian et al., 2007). Below are few important services that might be rendered in the customer contact center industry.

2.3.3.1 Technical Support

Technical support is a unit within the contact centers that is also called tech support teams. This unit primarily involves in providing variety of technical assistance to customers on goods and services within the contact center industry (CCAM, 2009; Frost & Sullivan, 2009; Ravipa & Mark, 2004). As the rule of thumb dictate, the technical support services is mainly designed to assist users of a product in solving specific problems with his or her products (Richard, 2007; Ravipa & Mark, 2004). There is need to emphasized that technical support is in no way similar to training, customization, or other form of support services.

Technical support in customer contact center industry is structured into fees based or non fees based (CCAM, 2009; Richard, 2007). But mainly companies that offer technical support for their products normally do it for free. This service is normally done via telephone calls, emails or a web based chatting (Bhimrao and Janardan 2008). Here in Malaysia, a number of call centers such as Nokia care-line, HP customer service etc are all involved in providing technical support services for free to their customers (CCAM, 2009; Frost & Sullivan, 2009). All these companies' falls under the list of 600 call centers that serves as the population of study in this research.

2.3.3.2 Telemarketing

Telemarketing is a unique method of direct marketing in which a salesperson solicits with prospective customers over the telephone to buy its company's

goods or services (Kotler & Gary, 2004). To facilitate operational efficiencies, it has been established that the customer contact centers normally use a major CRM tool called predictive dialer in facilitating its telemarketing operations. With the help of this predictive dialer, CSRs does not need to initiate calls, rather the system called and route it to the available CSRs (Frost & Sullivan, 2009; Yim et al., 2005). For this current study, telemarketing managers are not the subject of interest because their mode of operations primarily falls under the outbound units of contact center model.

2.3.3.3 Customer Service (Help Desk)

The help desk unit of the customer contact center mainly involves providing after sales services to customers through series of services such as consultation, support and problem resolution (Rajshekhar et al., 2006; Gummesson, 2004; Kode et al., 2001; Rogers et al., 1994). This role will generally involve specialized CSRs knowledge of one or more software packages at the user's disposal, not at technical level (Rajshekhar et al., 2006). It may involve assisting customers with the use of simple applications such as word processing, database or spreadsheet, and/or basic fault correction on hardware systems that are within the scope and understanding of the user's documentation. Knowledge and empathy possessed by the customer service representatives is very important in attending to and resolving customers' issues in their first call (Abdullateef et al., 2010b; Feinberg et al., 2002). Inadequate knowledge management by the

company has been argued as a negative input to the achievement of first call resolutions and caller satisfactions (Yueh et al., 2010).

2.3.4 Key Requirements for CRM success in Contact Center

The success of CRM initiative primarily requires the integration of every unit of the business that touches Customer, specifically People, Process and Technology (Abdullateef et al., 2009; Richard et al., 2007). Each of these components presents its own challenges, but a company's ability to successfully integrate all the three will determine CRM success or failure (David and Wendy, 2009; Soon 2007).

2.3.4.1 People

The People component is the most important and difficult part of the contact centre business given users' sensitivity to organizational changes (Abdullateef et al., 2010d; Richard et al., 2007; Richard, 2007). Peoples' importance in the company is irreplaceable as every organization need the right person in the right place to run the business successfully. Different authors have argued on the importance of People in the contact centre, and the need to carry them along in the formulation of the change so that they don't become adverse to such changes (Dean, 2009; Anand, 2008). Very important among the people are the Agent, because they serve as the touch point between an organization and the customers (David and Wendy, 2009; Ann et al., 1999).

2.3.4.2 Process

The process part of the key requirement of CRM initiative in contact centre is the most delicate because of its importance in maintaining the business goal. Any mistake in the automation of the CRM initiative process could lead to low first call resolution, loss of customers and people turnover (Anand, 2009; Feinberg et al., 2002). There are several elements that comprise of contact centre processes, among which includes:

- a) Policies and procedures
- b) Recruiting and training
- c) Agent performance management
- d) Change management
- e) Compliance etc (David and Wendy, 2009)

2.3.4.3 Technology

The Technology component has been argued as the most challenging given the continuous expansion of the contact center market (Yueh et al., 2010; Sin et al., 2005). Technology inputs which are the foundation upon which contact centers are built assist both the employees and customers in processing transactions and obtaining information more quickly and accurately (David and Wendy, 2009; Yim et al., 2005). Figure 2.5 below diagrammatically present the relationships between these variables within the contact center industry:

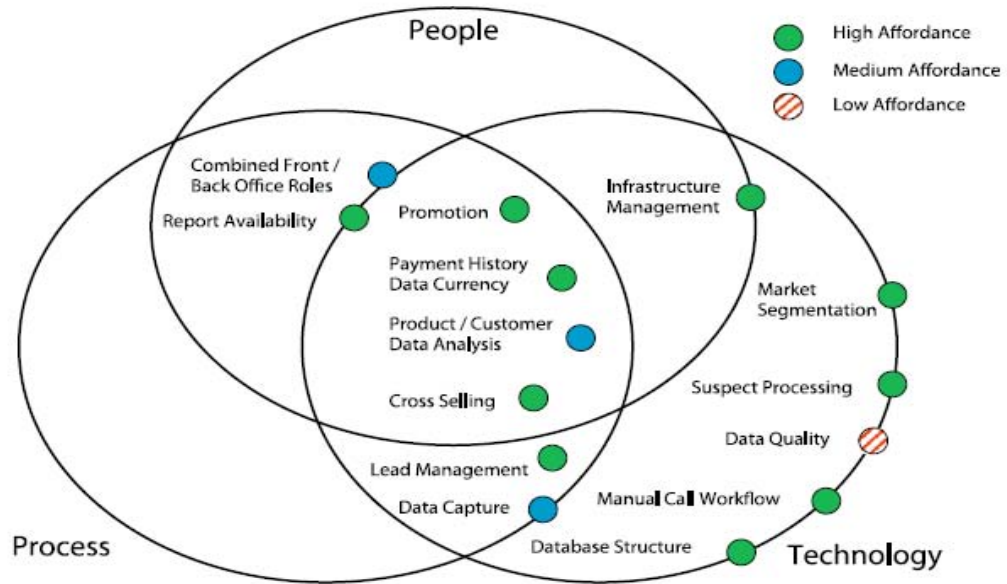


Figure 2.5: Relationships between People, Process and Technology

Source: Adapted from David and Wendy (2009).

2.4 Related underlying Theories of CRM and Caller Satisfaction

2.4.1 Relationship Marketing Theory

The evolution and origins of relationship based approach of a management's strategy could be traced to both the academics and practitioners mainly in the following three fields: strategy, marketing and supply chain management (Gummesson, 2004; Berry, 1983; Ford, 1980). Brodie et al. (1997) postulated that relationship marketing emerged from six streams of research. To Aihie (2007), the first stream of relationship marketing examines marketing from the perspective of a service context (Parasuraman et al., 2005). The second stream is said to have focuses on the inter-organizational exchange relationships (Gummesson, 2004; Berry, 1995; 1983). The third stream in this new paradigm of relationship marketing is said to be based on the channels literature, such as in the development of effective and efficient channel relationships within an organization (Aihie, 2007). The fourth stream is said to have mainly base on examining network relationships (Ford, 1980). The fifth stream emerges from the strategic management literature on the relationships that exist in value chains (Berry, 1983; Ford, 1980). Lastly, the sixth stream is said to concentrate on examining the strategic impact that an information strategy has on the relationships within and outside the organizations (Gummesson, 2004; Berry, 1983; Ford, 1980).

Given the aforementioned six streams, the extant literatures have made it clear that CRM applications and call center activities falls under service context and information strategy which are the first and sixth streams (Yueh et al., 2010; Anand, 2008; Aihie & Bennani, 2007; Richard et al., 2007; Gummesson, 2004). Based on the identifications of CRM applications to service context, it is worth mentioning here that the conceptualization of relationship marketing first appeared in the early 1980s specifically in the research field of services marketing (Berry, 1983).

But more recently, service researchers has gone beyond Berry's concept by continually criticizing the known marketing mix approach as no longer dominant and acceptable marketing logics (Aihie & Bennani, 2007; Richard et al., 2007; Gummesson, 2004; Moller and Halinen, 2000). This is due to its inability to provide for the conceptualization for modeling the relationships between service providers and their current and prospective customers (Gummesson, 2004). Most important is that relationship marketing is now gaining acknowledgement as the new paradigm through which marketing theory and practice can be efficiently implement (Makarem et al., 2009; Malhotra et al., 2006). With this new strengthened focus on relationship marketing, its theoretical and practical linkages with customer relationship management become clearer (Gummesson, 2004; Grayson & Ambler, 1999). Whereas, this CRM concept has been theoretically and practically argued has providing company managements with the general opportunity of implementing relationship marketing practice on a people, process

and technology basis (Abdullateef et al., 2010d; Yueh et al., 2010; Frust and Sullivan, 2009; McNally, 2007; Sin et al., 2005; Yim et al., 2005). This was why authors like Day et al (2004) and Gummesson (2004) have empirically stated that relationship marketing is most often cited as the general philosophical basis upon which the CRM concept was developed.

Similar arguments in support of the linkage between CRM, call center operation and relationship marketing theories are that the customers' quality experience and their subsequent satisfactions with such services are the outcomes of interaction relationships between company personnel and the customers (Day et al., 2004). More important is that for these interactions to yield the desired positive results it should be augmented by the traditional marketing communication, service delivery technologies and institutional images (Richard et al., 2007; Stern, 1997). This is because technology adoption and relationship marketing literatures have significantly contributed to the extant theoretical foundations upon which CRM research was developed (Tellefsena & Thomas, 2005; Venkatesan and Kumar, 2004; Storbacka et al., 1994). This in turn has theoretically established that CRM concept can be generally viewed as the practical implementations of relationship marketing theory, specifically with more emphasis on service providers' ability to maintain one on one relationship marketing techniques that is enabled through technology implementations (Vargo and Lusch, 2004; Too et al., 2001). Based on these trends, the primary focus of this study is to empirically understand and conceptualize a model that can explain

the relationship between CRM applications, first call resolutions, perceived service quality and caller satisfactions.

2.4.2 Resource Based Theory

As established above, the theoretical framework upon which this study is developed also aligned both in theory and practice with the resource based theory (Priem and Butler, 2001; Meso and Smith, 2000; Wernerfelt 1984). This is because this study empirically examined the impact of CRM applications on call center operational tradeoffs in its allocations of labor and technology resources. CRM initiatives have been argued as nested within the organization's system of interrelated and interdependent resources that companies use in generating competitive advantage (Coltman, 2007).

Several authors have opined that resource based theory categorizes resources as those elements that are controlled by an organization in order to formulate and implement necessary strategies that would assist in its operational efficiencies (Meso & Smith 2000; Grant, 1996; Mahoney & Pandian 1992; Barney, 1991; Wernerfelt 1984). Relationship marketing in customer contact center empirically aligned with the two schools of thought upon which resource based theory is built, "resource based view (RBV)" and "knowledge based view (KBV)", that both emphasized on the benefits of organizations competitive advantages (Coltman, 2007, and Acedo et al, 2006). In other words, CRM approach in customer contact center also empirically aligned with the

aforementioned schools of thought. Other authors such as Priem and Butler (2001) have summarized the resource based value approach into mathematical expressions for better understanding by the users. The elements of the mathematic model comprises of comparative advantage, resource value, resource rarity, sustainability, non imitability, non sustainability and non transferability.

- $\text{Prob (CA)} = f^+ (v \cap r)$
- $\text{Prob (S)} = f^+ (CA \cap i \cap s \cap t)$
- Where CA = Comparative Advantage, v = Resource Value, r = Resource Rarity, S = Sustainability i = Non Imitability, s = Non Sustainability and t = Non Transferability

Priem and Butler (2001) argued that the first equation indicate the probability of achieving competitive advantage is a positive correlation of joint occurrence of resource value and resource rarity. While the second equation indicates that the probability of sustainability of the existing competitive advantage is a positive correlation of joint occurrence competitive advantage, non imitability, non sustainability and non transferability.

In view of this, this research argued that the available resources in an organization and the existing systems that support the current service delivery processes should also be considered as part of the important structures in such organization. Meanwhile, for a better understanding of how CRM applications could yield a good service quality and customer satisfaction, there is the need to

know more on the underlying resource-based tradeoffs that call center managers must make. Although service quality has been researched as a key driver of performance in the call center industry, but looking at it from the operational perspective, one will agreed to the sustaining structures or resource-based tradeoffs and decisions that are inherent to deliver an efficient service to the current and potential customers. In this research, the researcher has presented the theoretical framework on resource-based arguments by introducing applicable concepts from resource-based theory, with evidence from operational perspectives such as capacity management and demand management and how each have been effectively utilized to maximize labor and technology resources.

In the last two decades, the resource based approach to company's competitive advantage as emerged as a strategic choice through which management of companies can identify, develop and distribute key resources to maximize returns on investment (Meso & Smith 2000, and Grant 1996). The Resource Based View emphasized that the individual firms are like a bundles of resources which possesses certain specific characteristics that have the potential of providing competitive advantage over competitors (Grant, 1996; Mahoney & Pandian 1992; Werner 1984). This resource based theory empirically states that to develop competitive advantage over competitors, there is need to develop and structure available resources in a way that it will best serve both the company's internal and external challenges (Meso & Smith 2000, Grant R M, 1996, Mahoney & Pandian 1992, Werner B, 1984).

Wernerfelt, (1984) argued that in order to achieve efficiency and high performance in operations, there is need for organizations to place equal or more importance on its internal environment than its external environment. What this theory mainly suggests is that a firm will find the best of its strength by looking internally to define and develop its core competencies. These core competencies will further assist the company in logically seeking profitable opportunities that are consistent with these competencies. For any organization to achieve efficient allocation of resource there is need to possess the right knowledge, processes, and necessary tradeoffs that will assist in creating wealth and increases customer value (Barney, 1991).

To strengthen this research work, the researcher has utilized RBV theory to document key operational tradeoffs in contact centers involving two types of resources (labor and technology). The researcher recognized that despite the importance of these two resources, they are not sufficient to sustain competitive advantage. In view of this, this research also focuses on contact centre processes in the area of demand management and capacity management. Demand management is basically an attempt made by an organization to shift demand in order to achieve one or more of the following goals: increase demand; change the timing of demand, or re-channel demand to other resources (Hesket et al, 1997). Capacity management on the other part is concerned with ensuring that the organization has enough capability to respond to and absorbed the

demand emanating from its immediate environment (Klassen and Rohleder, 2001). Using this theoretical framework, this research has used the extant literature reviews as a guide in adopting CRM dimensions as conceptualized by Sin et al (2005) and Yim et al (2005). These two literatures have established CRM as the key resource management tradeoffs that significantly influence service delivery and customer satisfaction in various industries (Sin et al., 2005).

To simplify the above theoretical framework, this literature review has taken into consideration variety of sources as they apply to each of the six streams of relationship marketing literatures and resource base theory with more emphasis on information strategy relationships and service marketing relationship from both sides of demand and capacity management of call center operations.

2.4.3 Caller Satisfaction

Several researchers such as Anand (2008), Kyootai and Kailas (2007), Wen (2007), Taylor & Baker (1994), and Zeithaml & Parasuraman, (1993) have conceptualized customer satisfaction as the individual customer's feeling of the pleasure or disappointment they got after comparing a product's perceived outcome or performance in relation to the customers' expectations. Empirically, researchers have established two general conceptualizations of customer satisfaction, namely, the transaction specific satisfactions and the cumulative satisfactions (Taylor and Baker 1994; Zeithaml and Parasuraman, 1993). The

transaction specific satisfactions has been defined as the customer's evaluations of his or her experiences and subsequent reactions to a specific service encounter (Wen, 2007; Cronin and Taylor, 1992), and while cumulative satisfactions is said to refers to actual customer's overall evaluations of the consumptions experiences he or she has gotten (Taylor and Baker 1994).

The specific interest in studying caller satisfaction, first call resolution and perceived service quality as the consequence of implementing CRM in this study has been stimulated by the general recognitions that caller satisfaction cannot on its own produce the desired customer lifetime values (Levin 2007a&b; McNally, 2007; Eric et al., 2006; Feinberg et al 2002; 2000; Kode et al., 2001). And given the overwhelming arguments under this same concept that asserts it is more expensive to winning the new customers than to keeping the existing ones (Taylor and Baker, 1994). This is because there are available literatures which support the arguments that the customer replacement costs such as advertising, promotions and sales are higher for new customers than for the existing ones and that it takes more time for the new customers to become profitable as against the old customers (Agrawal and Freytag, 2000; Abraham and Taylor, 1999).

Within the contact centers, satisfactions with the firms could be defined as the customer's overall evaluations of his or her experiences with the firm (Feinberg et al 2002; 2000). Caller satisfaction is a component of overall Customer

satisfaction which could be describe as the psychological concept that captures the feelings of well-being and pleasure that results from customers' ability to obtain what they hopes for and expects in calling the customer service department of their marketers/service providers (Feinberg et al., 2002; 2000). Literatures on the determinants of callers satisfaction is still at the infant stage if compared to the determinants of customer satisfaction. This is because caller satisfaction is limited in scope, specifically to the inbound call centers and contact center industry (SQM, 2005; Feinberg et al., 2000). Customer satisfaction on the other side is wider and different approaches to its studies have being in existence for decades. In trying to determine the criteria for measuring call center customer satisfaction performance, SQM (2007; 2005) classified call center performance into 3 categories: The low performing call centers that falls within top box caller satisfactions rating of 54% and below; the average performing call centers falls within top box caller satisfactions rating of 55% to 69%; and the high performing call centers within top box caller satisfactions rating of 70% and above (SQM, 2005).

However, some contact centers avails customers the opportunities of making the assessments of their satisfactions towards the customer service representatives that they have interacted with (Dean, 2007; McNally, 2007; Roland and Werner, 2005; Feinberg et al 2002; 2000). Consequently, customer satisfactions with the customer service representatives along with first call resolution and perceived service quality have been suggested as the key component of contact center

relationship quality (Dean, 2007; Levin 2007a&b; Roland and Werner, 2005; Feinberg et al 2002; 2000).

Very prominent among the literatures that was conducted on the operational determinant of caller satisfaction is Feinberg et al (2000), which established a positive relationship between first call resolution and caller satisfaction, but argued that none of the key elements found to be the determinants of customer satisfaction in other customer contact center industry are significant in the banking/financial call centers. They conclude that some of the things that are being measured in the contact center industry are simply not relevant and there is need for further research to look into it (Feinberg et al, 2000).

Several studies in marketing literature have found positive relationships between customer orientation, perceived service quality and caller satisfaction within contact center industry (Dean, 2007; 2004; Roland and Werner, 2005). Similarly, Dean (2007) empirically shown that perceived service quality of contact centers positively mediates the link between customer orientation and caller satisfactions. Part of the recommendation given was that caller satisfaction should be separately measured from the service quality so as to avail firms the opportunity of understanding customers' perceptions of service quality performance (Dean, 2007; 2004). Earlier to this, Cronin and Taylor (1994) argued that there is an existing consensus among marketing researchers that customer satisfaction and service quality are two separate constructs that are individually unique but share

a very close relationship. Below is table 2.4 that identifies some key elements that distinguished customer satisfaction from the service quality.

Table 2.4: Difference between Service Quality and Customer Satisfaction

Customer Satisfaction	Service Quality
Customer satisfaction can result from any dimension whether or not it is quality related.	The dimensions underlying quality judgments are rather specific.
Customer satisfaction judgments can be formed by a large number of non quality issues, such as needs, equity, perceptions of fairness.	Expectations for quality are based on ideals or perceptions of excellence.
Customer satisfaction is believed to have more conceptual antecedents.	Service quality has less conceptual antecedents
Satisfactions judgments do require to experience with the service provider	Service perceptions do not require experience with the service provider

Source: Adapted from Fen and Lian (2006).

As revealed table 2.4 that customer satisfaction and service quality are two separate constructs. A similar literature that has been done on distinguishing customer satisfaction can be capture in the literature of Abraham and Taylor (1999). They reviewed all the related literatures on customer satisfaction/dissatisfaction and came out with a comprehensive list of theories comprising of comparison-level; expectancy disconfirmation; assimilation or cognitive dissonance; assimilation-contrast; equity; attribution; generalized negativity; contrast; and value-precept as measures of individual satisfactions (Abraham and Taylor, 1999). The recent emphasis on CRM effectiveness and first call resolution as a key to caller satisfaction in the customer contact center

industry have illustrates the increased importance service providers/marketers are placing on customer quality and satisfaction.

2.5 CRM Dimensions

A detail review of the extant literatures have indicated that within the published literatures very few concentrated in the development of CRM frameworks (Yueh et al., 2010; Eid, 2007; McNally, 2007; Sin et al., 2005; Yim et al., 2005; Gummesson, 2004). Good example is Kode et al (2001) and Too et al (2001) that both suggested that the inherent absence of a good strategic framework for measuring CRM success is a major reason for the continuous disappointing results that has been occurring in many CRM initiatives. A further review of the available literatures shows that within the few CRM frameworks that currently exist many of them were not based on the required cross-functional customer oriented type of CRM conceptualization.

For example, Richardson and Richardson (2002) empirically outlined a framework for measuring initiatives of CRM, contributions and expected results, but in practical term this is not cross functional customer oriented process based. This is because it theoretically lacks the required inputs upon which successful CRM initiatives can be achieved (Agrawal and Freytagl, 2000). Others like Eid (2007), has also conceptualized the strategic, tactical and operational mix of CRM without explicitly establishing the required strategy, people, process and technology initiatives that have been suggested for a successful CRM framework

implementations. Sequel to these series of flaws and arguments, this research identified two major CRM conceptual literatures that both empirically integrate strategy, people, process and technology within their constructs (Sin et al., 2005; Yim et al., 2005). Most important thing to note is that recent literatures on CRM and call centers have continuously been making reference to the literatures of Sin et al (2005) and Yim et al (2005) as a good foundation through which CRM initiatives can be measured (Yueh et al., 2010; McNally, 2007; Richard et al., 2007).

Based on the review of past related literatures on CRM and detail interview with some selected CRM managers, Sin et al (2005) and Yim et al (2005) have both hypothesized that the concept of CRM is a multi dimensional construct which consist of four broad behavioral components in every implementing organizations: CRM organization; key customer focus, technology based CRM; knowledge management (Sin et al, 2005; Yim et al., 2005). They argued that their findings is in accordance with the general notion that a successful CRM is primarily designed to address four key areas in the implementing organization: corporate strategy; people; technology; and processes (Sin et al, 2005; Yim et al., 2005; Fox and Stead 2001), and that it is only when all these four components works according to target that a company will experience a superior customer related capability.

It was equally argued that for a company to be able to maximize its long term performance in all its metrics like customer satisfactions and commitment, employees' trust and commitments, and return on investment, such a company must build, maintain, and do everything possible to establish a long term and mutually benefited relationships with its current and potential customers (Eid, 2007; Sin et al, 2005; Fox and Stead 2001). Below is figure 2.6 that diagrammatically presents the four dimensions of CRM as separately conceptualized by Sin et al (2005) and Yim et al (2005).

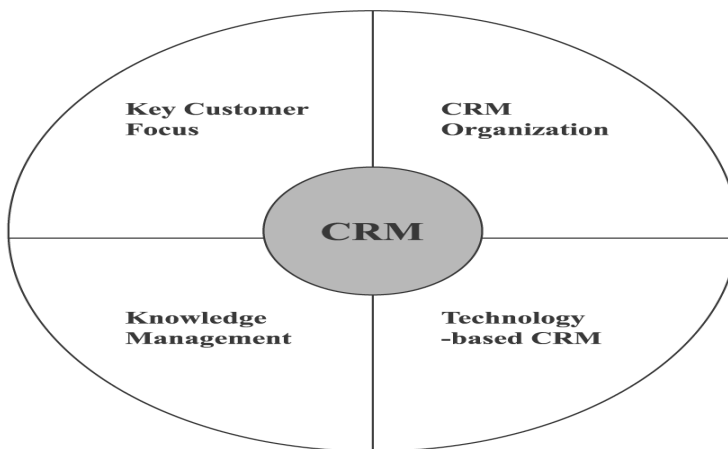


Figure 2.6: Components/Dimensions of CRM

Source: Adopted from Sin et al (2005)

2.5.1 Customer Orientation

Most literatures have used terms such as marketing concepts; market orientation, customer orientation, market driven firms, or market focused organizations to describe the types of an organizational orientation where customer needs serves as the basis upon which organizations plans and designs

its strategies (Dean, 2007; Brady et al., 2001; Lukas and Ferrell, 2000; Kohli and Jaworski, 1990; Narver and Slater, 1990). Over the last twenty years these concepts have started to be very critical in the field of marketing management practices and theories, with apparent conclusions in support of the statement that any organization that adopts customer orientation approach are more likely to establish the required customer quality, increase customer satisfaction and achieved the desired organizational objectives more efficiently than its competitors (Roland and Werner, 2005; Narver and Slater, 1990). Given this evidence and many more empirical findings that have establish customer orientation as an important antecedent of competitive advantage and business profitability (Brady et al., 2001; Narver and Slater, 1990), probing and measuring the influence of this orientation has captured the attentions of researchers (McNally, 2007; Sin et al, 2005).

Beyond this are the different ways with which different authors have explained the meaning of customer orientation, with specific reference to Kohli et al (1993) that argued that customer orientation serves as one of the behavioral components in a typical market orientation programs. Other components includes competitor orientation and inter-functional coordination, which were said to be interlocking in between two decision making procedures of long term customer focus and organization's profitability (Kohli et al, 1993). In addition to this are the arguments from some academics that there have been no established clear distinctions between market orientation and customer orientation (Lukas and

Ferrell, 2000; Kohli and Jaworski, 1990). The apparent conclusion is that both terms have been interchangeably used (Brady et al., 2001; Lukas and Ferrell, 2000; Kohli et al., 1993; Kohli and Jaworski, 1990; Narver and Slater, 1990).

Despite the growing interest in customer orientation theories, some authors believed that the general thinking that is embedded in customer orientation concept is not revolutionary (Lukas and Ferrell, 2000). These arguments embodied strong rhetorical statement that emphasized the need for managers to be able to design and deliver a sustainable reliable customer orientation programs that would best serve the current competitive turbulence in this modern marketing environment (Aihie and Bennani, 2007; Roland and Werner, 2005; Kohli et al., 1993; Kohli and Jaworski, 1990; Narver & Slater, 1990).

At the other extreme end are some authors that argued that despite the importance of the concept of customer orientation, there still exist very little literatures that are dealing with process of developing such an orientation, whether through a general descriptions or via a case study approach (Sin et al., 2005). Looking at customer orientation from a broader level, Berry (1995) argued that a number of significant studies have started dealing with issues that relate to auditing the organizational marketing efforts.

For Sin et al (2005) and Yim et al (2005), they argued that although it is observed that most empirical studies have been concentrating on the degree and

measurements of the concepts, but the extant literatures have long neglected the variations in the customer orientation dimensions or the features of the concepts as exhibited by each organizations (Sin et al., 2005). Therefore the general literatures on customer orientation could be argued as not been widely practiced specifically by the contact center professionals in the manner advocated by Sin et al (2005) and supported in other literatures such as Yim et al (2005), Roland and Werner (2005) and Dean (2007). The fact of this matter is that whether in the contact center or any other industry it is good to note that the need to provide valid measures for the customer orientation programs should be seen not only in symbolic terms, but the very light of what the implementer is actually seeking to achieve (Dean, 2007; Roland and Werner, 2005).

As argued by Dean (2007) that customer orientation is an effective means through which contact center operational measures can stimulate a focused and well integrated organizational efforts, and provide a benchmark for determining whether customer-orientation strategies are working as intended. And that the measurement could be carried out via either formal or informal measurement techniques. The formal measurement techniques is said to be using customers based quality performance measures in gauging the true perceptions and the sub consciousness factors that could impel the customer's behaviors (Dean, 2007). Although there is a major problem with the formal measurement techniques, which is that major efforts are mostly directed at measuring customer satisfaction on core offerings, with specific emphasis on the surrogate variables such as

sales volume, product characteristics, profits, technical efficiency, and most importantly the complaint statistics (Berry, 1995; Narver and Slater, 1990).

Nevertheless, there are arguments in favor of the importance of formal techniques because of its inherent capacity in sending early warning signals to the management when there is a notice of strategic drift (Adams and Michael, 2005; Lukas and Ferrell, 2000). Roland and Werner (2005) empirically suggest that customer orientation as a significant construct is a key to a contact center's ability in becoming market oriented. They went further to argue that customer orientation is believed to be fostering a set of positive marketing outcomes. Also found in their research is that customer orientation is positively related to employee performance and customer satisfaction in the contact center industry (Roland and Werner, 2005). Other authors have also established that customer orientation is one of the three dimensions of Market orientation, that assist companies in establishing customer driven environment, that will in return generate superior performances, customer loyalty and retention (Lukas and Ferrell, 2000; Kohli et al, 1993).

In this research work, customer orientation incorporates both commitment to customer's needs and customer feedback as supported by many extant literatures (Dean 2002). Other marketing and IT scholars have equally highlighted the importance of preparing the organization with the required right business and management practices and necessary processes that are

important for the successful adoption of CRM technologies (Eid 2007 and Gummesson 2004). Important facets of the company's culture such as customer orientation have been confirmed to positively affect CRM implementation and performance results (Nguyen et al, 2007). Also significant are evidences from Dean (2007; 2004) that established a positive link between contact center customer orientation and customer satisfaction, both at the individual and firm level. Similarly are previous researches such as Kohli et al (1993) and Berry (1995) that cites several empirical studies that have suggest a linkage between the customer orientation and customer satisfaction.

2.5.2 CRM Organization

A detailed review of the extant literatures have established that CRM Organization essentially mean a fundamental changes that have occurred in the way that corporate companies are organized and approaches for implementing business processes (Bhimrao and Janardan, 2008). Put differently, CRM organization could be seen as the alignment of viable business strategies, customer information and technology on the existing organizational structures and cultures, with the primary aim of achieving long-term customer satisfaction and organizational profits (Sin et al., 2005). In support of this definition are evidences from a recent literature which indicated that culture is a very critical but mostly overlooked factor that has been confirmed to have a strong influence in any success or failure of a CRM project (Coltman, 2007). Arguing further, Coltman (2007) emphasized three predominant aspects that should be consider

in implementing CRM. The first part is the organization's ability and its willingness to effect the needed change to business entire processes. While the second part is the degree to which such business units currently works together in terms of reaching compromise on shared strategies. Lastly is the level of support that both the top management and the entire staffs accord such CRM implementation (Coltman, 2007).

Meanwhile evidence from theories such as market orientation and customer satisfaction has been argued to be good indicators of the importance of CRM concept (Roland and Werner, 2005; Gummesson 2004; Kohli and Jaworski, 1990), however it was equally established under that same arguments that if there is no existing underlying strategies that will enforce a customer focus across available strategic business units, such organizations are likely not to move beyond the traditional product concept (Eid, 2007; Kohli et al, 1993). Due to these foreseen shortcomings, some authors have argued on the need for the entire organizational structures in promoting a well coordinated cross-functional cooperation (Sin et al., 2005; Yim et al., 2005). It was further encouraged that companies should do everything possible to pay adequate attention to its organizational challenges that are inherent in its CRM initiatives (Eid, 2007; Sin et al., 2005; Yim et al., 2005).

Part of what Yim et al, (2005) gave as the key considerations to any anticipated success of CRM initiatives are “*organizational structure, good human resources management system, and organization wide corporate commitment of available*

resource". By organizational structure they mean that CRM initiatives expect the entire organization to work towards a common corporate goal of achieving strong customer relationships. In view of this, it was suggested that the best organizational structural designs that most suite the optimization of customer relationships include a company's ability to establishment efficient process teams, customer focused teams, cross discipline segment teams, and cross functional teams (Sin et al., 2005; Yim et al., 2005).

Furthermore, Sin et al (2005) argued that organization's wide commitment of resources should be followed immediately after establishing the design of organizational structure and properly integrating those involved components. Very important are the organization's sales and marketing resources, employee's technical expertise, as well as those resources that are used for promoting service excellence given that all things are within expectation (Eid, 2007). It is highly important to emphasize that a company's success on product development, supply chain, customer acquisition and retention, and all other reactivation depends on each company's ability to effectively commit their time and resources towards the identification and satisfaction of key customer's needs (Sin et al., 2005; Yim et al., 2005).

Apart from the above findings, other authors have equally found out that a company's Human resources management, its strategies, its people, its technology application, and its established processes quality measurement and management are all very important to the success of CRM, but more importantly

are the contributions of its individual employees (David and Wendy, 2009; Eid, 2007; Nguyen et al, 2007; Sin et al, 2005). According to Eid (2007), “he emphasized that the hardest part of an organization’s ability to becoming a CRM oriented is not the issue of technology, but it’s more of the people.” This is because a company’s internal marketing in the area of human resources management and marketing interface should try to instill in its employees the benefits inherent in service mindedness and customer orientation (Coltman, 2007; James, 2004; Kohli 1998). All this was based on their general believe that if the above could be achieved, any company will be availed with the most four important internal marketing processes, which include good market training and education, efficient internal communication, reliable reward systems, and reasonable employee involvement in decision making processes (Sin et al, 2005 and Kohli 1998).

Notably, this study will like to emphasized that although Feinberg et al (2002) has a contrary opinion of organizing a company around technology that it doesn’t have any significant impact on caller satisfactions, but still are other literatures on contact centers that have argued in favor of effective CRM organization of customer information as the cornerstone to any successful CRM programs in the contact center industry (Soon, 2007; Anand, 2007, Yim et al., 2005). And to facilitate both the operational and analytical applications of the CRM programs, it was argued further that this information should provide a unique customer focus, and be efficiently distributed across the strategic business units in such

organizations (Kyootai and Kailas, 2007). Meanwhile achieving this is said to require a reliable technology architecture that will integrate a series of multiple applications ranging from the operational legacies in contact center systems right to the data warehousing and its relevant associated data marts (Soon, 2007; Adam and Michael, 2005).

2.5.3 Knowledge Management

Knowledge Management as information strategy have been defined in different ways by different authors, but essentially it is a means with which companies capture, organize, manipulate, and share implicit and explicit data with both internal and external users (David and Wendy, 2009; Eid, 2007; Sin et al, 2005) . Whereas evidences from several literatures have indicated that the success or failure of relationship marketing activities in a company heavily depends on the company's ability to collect and analysis valuable customer information that could used for developing and establishing individual customers' highly personalized product/services (David and Wendy., 2009; Dean., 2007; Eid., 2007;). Kode et al (2001) extensively argued that the current global marketing problems are as a result of information handling issues and problems. Authors such as Sin et al (2005) and David & Wendy (2009) are one of the few literatures that have strongly emphasized on the relationship between CRM and KM with specific point on customer knowledge management (KM), because the importance of customer knowledge had been highlighted in many CRM researches (David and Wendy., 2009; Sin et al., 2005; Gebert et al., 2003).

However, it is very important to clarify in this research that information should not in anyway be confused with knowledge. An organization is said to possess Knowledge only when the available information has been analyzed and effectively used to implement appropriate strategic decisions and actions (Eid, 2007). In support of the aforementioned facts on CRM and KM literatures, David and Wendy (2009) argued that the confusion between CRM and KM has led many companies to commit high investments on ICT projects and programs which have resulted in a marginal results. And to overcome the observed ICT productivity problems, managers needs to put in place ICT-generated customer information into their organizational decision making processes (Sin et al., 2005).

According to Acedo et al (2006) and, Meso & Smith (2000), these decision making processes involve three broad stages that run concurrently in the company: namely, Customer information acquisition, Customer information sharing and Customer information utilization. Therefore, collecting and creating insights, skills, and relationships are all termed “knowledge acquisition”, and wherever these knowledge been disseminated and shared among the different strategic business unit in the company is termed “knowledge sharing” and lastly whenever there are integration of learning, customer’s insights and experiential knowledge that are put together in support of effective decision making processes in the organization is called “knowledge utilization”.

Similarly Sin et al., (2005) have identified the following critical success factors for knowledge management: the type of ICT and organizational infrastructures; the presence of friendly culture for knowledge sharing, knowledge creation and management; change in motivational practices for encouraging and rewarding highly performing staff whenever new information is collected, shared and used within the organizational. David and Wendy, (2009) equally stressed the importance of ICT in developing knowledge management. Many other authors (McNally, 2007; Fox and Stead, 2001) have also highlighted the importance inherent in customer KM strategies and the need for a crucial leadership style that will encourage visionary knowledge officers to bring together all the CRM stakeholders (e.g. Back office, frontline, finance, ICT etc). These inputs have been argued as a good means of sharing a common platform of beliefs, expectations and commitment at all level in the company (Acedo et al, 2006).

Coltman (2007) equally stressed that putting in place a knowledge based CRM techniques mainly requires building trust and supporting staff empowerment. This is because it will all assist in establishing employees' confident that taking any risks in the cause of making decisions that are based on new information, thorough customer insights that knowledge will be highly rewarded and not penalized. Contrary to the above, any company's cultures that do not drive out fears in their employee might face two side effects: (1) they will force their employees to focus on short-term strategies at the cost of long-term organization performance; and (2) company will encourage their employees to focus on the

individual performance rather than the collective organization performance (Sin et al., 2005; Yim et al., 2005). Meanwhile, Miciak and Desmarais, (2001) observed that though hotels sometimes capture a considerable amount of customer data and information, but in reality those data are rarely used creating a useful knowledge about the current and potentials customers. Similarly, Eric et al, (2006) also found out that the general collection and use of customer information in a company are frequently intermittent, sometimes delayed and/or fragmented.

On the whole, knowledge based CRM in the services industry requires a culture where every customer contact is perceived as a learning skill and each customer interaction as a chance to knowledge building and an opportunity to collect latest information about the customer (McNally, 2007; Sin et al., 2005; Yim et al., 2005; Gummesson, 2004). Also very important about knowledge based CRM is that it is a good means to getting information of the customer, specifically customers' personal and transactional data such as complaints, claims, and customer feedbacks and/or useful information from the company to the customer, such as product, services, and organizational information etc. (Anton, 2000).

Similarly, in the application of Customer Relationship Management in the Contact Centre Industry, knowledge Management assists in the company's ability to learn from each customer interaction (Dean, 2007; McNally, 2007; Roland and Werner, 2005). The advent of CRM has assisted in turning information to actionable

knowledge which could be made available to employees for customer profiling and personalization, or to the customer itself for self servicing. This is because the evolution of CRM in the call center industry first came through a form of Knowledge Management technology development, via the use of customer self service on the web.

As explained by Antonio et al (2005), Knowledge Management Technology development generally known today as CRM applications in Contact Centre industry constitute one of the six streams of research from which the Relationship Marketing has emerged. It basically examines the strategic impact that information strategies could have on the relationships within and outside an organization. Other five streams of Relationship Marketing research includes: Service relationships, Inter-organizational exchange relationships, Channel relationships, Network relationships, and Value chain relationships (Antonio et al, 2005).

2.5.4 Technology Based CRM

As noted that accurate customer data is very essential to any expected successful CRM performance (McNally, 2007; Sin, et al., 2005; Yim et al., 2005) and, considering the fact that technology is said to be playing an important role in any CRM projects through its capacity to add value to a company's intelligence performance (Kyootai and Kailas., 2007). The extant literatures have discussed the impact of Technology on CRM projects through its capability in collecting,

storing, analyzing, and sharing both current and potential customers' information in ways that have greatly enhance employees' ability in responding to the needs and request of the individual customers and therefore leading to better ways of attracting and retaining customers (David and Wendy., 2009; Kyootai and Kailas., 2007; Nguyen et al, 2007; Sin, et al., 2005).

The unprecedented advances in information technologies has assisted in improving the promise on customer value analysis through mass customization via CRM integrated approaches, such as web enabled approach, automation of marketing and customer support processes, customer information systems, and contact centers (McNally, 2007; Dean, 2007). The advent of CRM has assisted the establishment of information intensive strategies which encompasses computer technologies in building and retaining long term relationships, by leveraging the existing technology and strategically linking technology deployment to alternative targeted strategic business units (Sin et al, 2005). It is worth mentioning here that the invention of technology in relationship management has to great level assisted employees in all contact points to serve customers better, and without technology, many customer centric programs would be impossible (David and Wendy., 2009; Kyootai and Kailas., 2007; and Sin et al., 2005).

Many of the existing literatures have argued in support of the positive impact that the initiation, development and implementations of CRM technology within an

organization has on the long-term customer relationships (McNally, 2007; Ravipa and Mark, 2004; Fox and Stead, 2001; Berry, 1995). Notably, this study identified that it is widely possible for researchers to determine if an organization has in place CRM technology or not, but measuring the effectiveness of its utilization in terms of user acceptance, and the desired operational performance have since been neglected and this has been confirmed as very vital to the implementing firm (Ravipa and Mark, 2004). The existing academic and practitioner literatures on CRM are mostly in the areas of customer database, contact centers, online chatting systems, e-mails, Internets and some organizational group support systems (McNally, 2007; Nguyen et al, 2007; Adam and Michael, 2005; James, 2004).

Available theoretical evidences have established CRM as a special application in relationship marketing, Sin et al (2005) proposed, tested and empirically established a positive linkage between technology based CRM and organization performance (Sin et al, 2005). In support of their findings , Yim et al (2005) went further to argue that CRM technology can simply be described as the process through which organization collect, access and utilize customers' information for the benefits of achieving their work targets and customer satisfaction. Arguably the purchasing and implementations of CRM technology could be channel towards any of the available three aspects of CRM which could each be implemented in isolation from one another i.e. operational, analytical and collaborative types of CRM (McNally, 2007; Fox and Stead, 2001).

Given available findings by some researchers that there are currently two major aspects of CRM systems integration that could be implemented in any organization, first is strategic business unit applications and the second is customer functional touch points (McNally, 2007; Sin et al., 2005). Importantly, the ability to efficiently integrate the contact centers with all other functional units in the organization has been argued to avail both the customers and the organization an efficient means of communication (Aihie and Bennani, 2007). Below is table 2.5 that depicts relevant technologies that have been implemented in Malaysian customer contact centers.

Table 2.5: Malaysian contact center technologies

Total Market % of Call Centers that Uses:	Utilize Now	Purchase Next 12 Months	Upgrade Next 12 Months
Automatic Call Distributor (ACD)	81%	0%	11%
Interactive Voice Response (IVR)	35%	2%	6%
Computer Telephony Integration (CTI)	18%	3%	6%
Customer Contact/Customer Relationship Management (CRM) Software	43%	2%	6%
Workforce Management Software (WMS)	17%	0%	3%
Speech Recognition Software	0%	2%	0%
Call (Voice Only) Recording System	35%	0%	6%
Voice & Data Recording & Quality Monitoring System	4%	3%	0%
Internet Protocol Telephony (VoIP)	1%	2%	0%
Predictive Dialers	2%	1%	1%
E-Learning System	10%	4%	2%

Source: Malaysia Call Center Benchmark (2003)

The above table as presented by the Callcentre.net (2003) aptly depicts that customer relationship management involves a set of business strategies,

business processes and necessary information technologies that assist firms in learning more about the customers' behaviors and needs so as to develop and establish a long-term stronger relationships.

2.6 First Call Resolution

Sequel to the series of literatures that have argued against the efficiency of the current quantitative measures in determining contact centers operational performances (Levin 2007a and b; Eric et al., 2006; Kode et al., 2001), academic scholars such as Feinberg et al (2002; 2000) has made a case for first call resolution (FCR). FCR has been defined as the percentage of the calls that does not requires any further contacts or callbacks to address the same customer's reason for previously calling. Also in support of FCR arguments are that it ought to be defined from the customer perspectives, which any attempt by firms to calculate such will amount to an incorrect estimates (Stephen and Michael, 2008; Timothy et al, 2006). Their primary view is that there is need for a greater effort to evaluate whatever that will satisfy the customers' needs.

Some literatures have equally criticized the industry standard that target 80 per cent of incoming calls to be answered within 20 seconds, as being very hollow in terms of achieving best call qualities that will meet the customer's expectations (Dean, 2009; 2007, Eid, 2007; Roland and Werner, 2005). Their arguments are premised on measuring how well of a call, as against the existing industry

structures that involves measuring fastness of a call. Levin (2007a and b) equally support that FCR is by far the contact center variable that is having the biggest of impact on caller satisfaction. Integrating his analysis from the findings of Service Quality Measurement consulting group (SQM), Levin (2007a) empirically argued that the caller satisfaction will drop at an average of 15% for all the callback that a customer makes to any contact center. In that same SQM's finding, it was estimated that for every 1% improvement that any contact center achieves in FCR, they will get a 1% improvement in their caller satisfaction (Levin, 2007a). Also relevant in the findings to establish the importance of FCR is a study of 150 contact centers by SQM, where they have found that the world class contact center with a high customer satisfaction ratings have an average FCR of about 86% (Stephen and Michael, 2007). SQM findings also indicated that the contact centers with lower customer satisfaction index are always within the lowest range of FCR (Stephen and Michael, 2007).

In Levin (2007b), he empirically establish that any contact center that achieved an increased customer satisfaction will likely experience a lower cost of operation, reduction in repeat callers, reduction in risk of existing customers defecting to the competitors, and finally achieving a higher employee job performance. The premise of this argument is that if contact centers are facing increased repeat calls from a group of frustrated customers, the resulting effects is that it will definitely strains the customer service representatives and invariably

leading to a lower employee morale, poor customer service outputs and subsequently leading to higher customer service representative turnovers.

Some authors have depicts the benefits that are inherent in the real time customers surveys as an effective means of capturing the required information that firms need in combating the cause of the customers repeat calls (Feinberg et al., 2002). Further explanation was given in support of an open ended type of survey where opportunity can be given to the callers to provide detail descriptions of the actual problem they are facing. This is because those literatures believed that the proposed qualitative information will add the needed explanations to the available dramatic quantitative information about customer problems (Levin, 2007a&b; Feinberg et al., 2000). As revealed that many contact centers have been employing different technology and manual applications to assist them in answering their FCR rating questions, but none of this technology have been established to have the capacity in accurately answering the question in a better way than the customers themselves (Stephen and Michael, 2007). That firm's process of reviewing their phone records and trying to run software applications are nothing rather than beating around the bush (Stephen and Michael, 2007).

Finally, since first call resolution has been established as a popular KPI, it is important to ensure that its application is properly benchmarked within the

contact center industry (Stephen and Michael, 2007; Levin, 2007a&b; Feinberg et al., 2002; 2000).

2.7 Perceived Service Quality

The global competition threatened by the financial crisis has confirmed the need for service marketers to monitor how their customers feel about their services, and this can only be achieved by exploring every available means. With reference to Parasuraman et al (1985), organizations' ability to delivering a superior service quality has been established as a prerequisite for a success and survival in the current business world. And this success is said to be more dependent on customer satisfaction through a set of the quality of service delivered (Cronin and Taylor, 1994).

A related generally acceptable standard that service quality is a perception of judgments about the superiority of a service rendered by an organization, but till now the exact nature of this attitude or perception has not been globally agreed (Mohr, 1998). Many authors have suggested that perceived service quality originates from a comparison of different individual expectations with different company's performance perceptions or disconfirmation of expectations (Parasuraman et al., 1988). Others such as Teas (1993a) argued that service quality is said to be derived from a comparison of service performance with expected industry ideal standards, while Cronin and Taylor, (1992) argued that it is from perceptions of organization's performance alone. To further analyze the

opinion and findings of researchers on the difference between perceptions and actual performance, many authors have proposed different instruments for measuring customer satisfaction in service industry.

Very famous among these instruments for measuring service quality in the service industry is the SERVQUAL which was postulated by Zeithaml et al. (1985). At the introductory stage, these researchers gathered data from different services industries, among which includes securities brokerage, appliance repair and maintenance, credit card, banking industry, and phone companies. Part of their development at the early stage was 10 dimensions instrument for measuring the service quality attributes within services industry. They finally extract five factors (tangibles, reliability, responsiveness, assurance, and empathy).

Zeithaml et al. (1985) and his team argued further that service quality is the existing gap between the expected and perceived service delivered by the service company. They denote this gap as Gap 5 in the service quality gap model that they developed and further argued that this Gap 5 depends on the other four gaps (Gap 1 to Gap 4). Looking through what constitute Gap 1 to Gap 5 on service quality Gap model, one will find out that the proposed conceptual framework for measuring caller satisfaction in this study captures Gap 3 which is service performance Gap. Gap 3 is a gap which is said to exist as a result of the discrepancies between the service quality specified by the service company and

the actual service delivery by the service company. In support of the above arguments, Parasuraman et al (2004) gave the following reasons to justify the existence of Gap 3; inappropriate evaluation, employee role ambiguity, poor technology-job fit, employee role conflict and reward systems, lack of empowered service employees, poor employee-job fit and lack of teamwork.

In the contact center industry, perceived service quality has been defined as the customers' overall assessments of the superiority of a firms' service with respect to its service interactions and the subsequent outcomes (Cronin and Taylor, 1994; 1992). In their synthesis of previous literature reviews, Brady et al (2001) have established three service quality dimensions: interaction, environmental, outcome quality. Due to the telephony context under which this present study is being conducted, Dean (2007) argued on the need to exclude the physical environment and integrate interaction quality as the customer service representative behavior, and the outcome dimension as the waiting time (Dean, 2007). But notably the measurement instruments that were adopted by Dean (2007) clearly indicates that they are operational variables such hold time, average handling time, etc that were initially found by Feinberg et al (2002) as not significantly related to caller satisfactions. Given the trends in these theoretical linkages, this study therefore considers to adopt Dean (2007; 2004) because they are most recent and also the only observed academic literatures that have empirically developed measurement items for perceived service quality within the contact center industry.

2.8 Chapter Summary

Based on the findings from review of literatures on the impact of CRM on caller satisfaction, the following conclusions can be made:

Researches on CRM till date have primarily focused on issues affecting technology implementations, and the likely critical success factors for CRM implementations (more importantly in process management and employee performance to cost and sales. This research also revealed that despite the relative importance of resource based view in labor and technology oriented firms and other benefits that relationship marketing approach could avail firms; very little studies have empirically ascertained this within the contact center industry. Meanwhile, findings from this study shows that resource based view (RBV), relationship marketing (RM) and the recent customer relationship management (CRM) are all strategic concepts in the modern day marketing theories and practice.

Fundamentally, evidence from the literature review indicate that CRM dimensions are viewed by practitioners and marketing researchers as any practical approach that a company could put in place to acquire, service and retained its current and potential customers at profit. However, till date very few empirical studies have been conducted in linking RBV, RM and CRM within the contact center industry. It is observed that there is need for additional empirical study that will link CRM to resource based view and relationship marketing so as to assist the different

perspectives in focusing and consolidating the current practical gaps and its related theories.

Finally, findings from the literature review also shows that there are very few studies that were conducted to specifically determine the impact of CRM on call center performance. Importantly despite the strategic importance of inbound call center, it is noticed that till date no observed studies have empirically research to determine the impact of CRM on inbound call center. These and many other reasons have made several authors to have called for an empirical study that can determine the impact of CRM applications on the performance of inbound call centers.

Chapter 3

The Research Model and Hypotheses

3.1 Introduction

Chapter 3 formally introduces the research conceptual model, with detailed outlines of the relationships that exist between CRM dimensions, first call resolution, perceived service quality and caller satisfactions. It equally contains information on the significant practical and theoretical research gaps, and finally presents this study's research model and the hypotheses to be tested.

3.2 The model that is created from the literature review and Qualitative study

This study is a theory testing empirical research that involves examining the impacts of CRM applications on caller satisfaction in the customer contact center industry. The study mainly examined the relationships between the four dimensions of CRM applications and caller satisfaction within the customer contact center industry. Both the literature review and the initial qualitative study establish a causalities relationship between contact centers desired CRM applications and Caller Satisfaction, with more emphasis on its primary drivers First call Resolution and Perceived Service Quality (Dean, 2009; Callcentre.net, 2008; Feinberg et al., 2002; 2000).

This theory testing study made use of the above two primary drivers as the mediating variables between CRM applications and caller satisfaction based on available literatures establishing their linkages (Yueh et al., 2010; Dean, 2009; 2007; Roland and Werner, 2005; Sin et al., 2005; SQM, 2005; Yimj et al., 2005; Callcentre.net, 2003). The researcher understands that each of this drivers are maximized by companies subject to their available resource constraints, but making a joint utilization of them efficiently have been argued to be greatly impacting the company and customer's expectations (SQM, 2005). Given that FCR and perceived service quality are both outputs of service interactions as established by Brady and Cronin (2001b) in their three dimensions of overall service quality (interactions, outcomes, and environmental quality), this research will like to refer to the above two mediating variables as "outcome of CRM adoption".

Available evidences equally shows that for a service to be efficient, it must comprise of first call resolution, and perceived service quality (Levin, 2007a&b; Dean, 2007; Roland and Werner, 2005; SQM, 2005; Callcentre.net, 2003; Feinberg et al., 2000). This in turn depends on the effective implementation of the CRM dimensions (customer orientation, CRM organization, knowledge management and technology based CRM) within the contact center (McNally, 2007; Sin et al., 2005; Yim et al., 2005).

Finally, based on the findings from the extant literature reviews, suggestions from the professionals at the initial qualitative study and feedbacks on paper

presentations at international conferences and journal publication, below is the proposed model. Relevant literatures in support of each variable and the analyses of the executives' response from the qualitative study are detailed under the elements of each hypothesis.

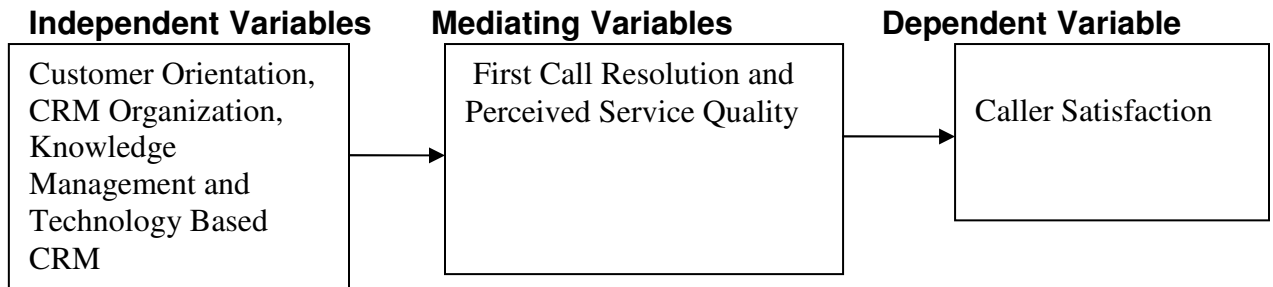


Figure 3.1: Impact of CRM on Call Center Performance

A Structural Model and Direction of the Research Hypothesis

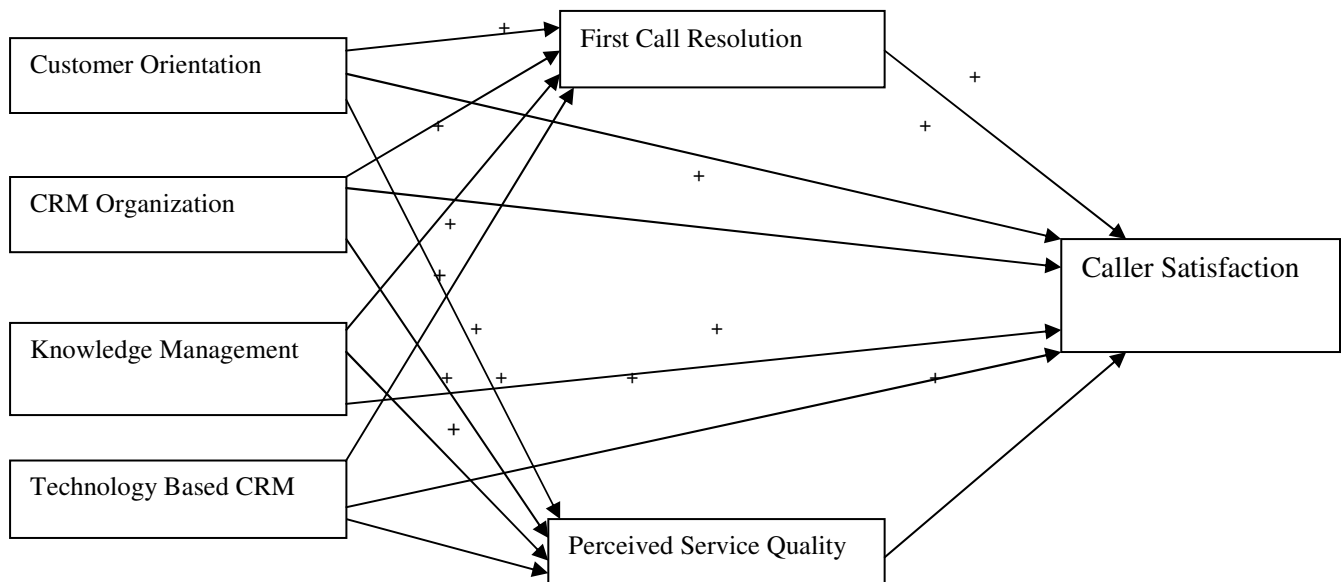


Figure 3.2: Conceptual Framework

3.3 Factors that determines CRM applications

CRM application as a potential means of establishing and maintaining long term mutually beneficial relationships with customers are directly or indirectly affected by some factors (Eid 2007; Roland and Werner, 2005). Eid (2007) in his empirical study “towards a successful CRM implementation in Banks” categorizes these factors as strategic, tactical and operational factors. He grouped each of these constructs based on the structure of the study under investigation, where he emphasized on top management support, CRM strategy, benchmarking etc as the strategic factors and customer orientation, employee acceptance, CRM Software selection etc as the tactical factors, while operational factors are categorized into CRM performance metrics and CRM implementation schedule that jointly work to determine CRM Effectiveness (Eid, 2007).

Similarly, Roland and Werner (2005) also conducted an empirical study on “managing overall service quality in customer care centers” using variables such as customer orientation, employee orientation and process quality measurement as the determinants of employee satisfaction and caller satisfaction and loyalty. Their findings indicated a positive relationship from customer orientation and employee orientation to both employee satisfaction and customer satisfaction. But there exist a negative relationship between process quality measurement on both employee satisfaction and caller satisfaction (Roland and Werner, 2005). These theoretical findings are equally supported by the initial qualitative interview conducted by the researcher. Specifically, when managers attested to their

measuring caller satisfaction based on operational variables within the contact center industry. That in recent time there have been complaints from agents on why the management is not measuring caller satisfaction base on the effectiveness of quality control programs, and the impact of CRM systems on employee job performance in their ability to efficiently attend to customer enquiries”.

One of the agent interviewed said the overall burden in the customer contact center are placed on the agent, and that this is one of the primary reasons behind the high attrition rate within the industry. She suggested that there is the need to restructure the existing service quality measurement for a better one which will capture system effectiveness and employee empowerment. In addition to the above statement are the different extant literatures which have confirmed the significance of First Call Resolution as a major determinant of caller satisfaction within the customer contact center industry (Teehan and Tucker, 2010; Levin, 2007a&b; Soon, 2007; Nguyen et al., 2007; Eric et al., 2006).

3.3.1 Relationship between Customer Orientations, First Call Resolution, Perceived Service Quality, and Caller Satisfaction

Evidences from marketing literatures, IT literatures and Industry practices agreed to the fact that customer centric focus is a pre-requisite to any successful CRM Projects (Sterne, 2010; Yueh et al., 2010; Dean, 2009; 2007; Eid 2007).

Customer orientation was defined by Dean (2004) as the degree to which an organization emphasizes on meeting customer needs and expectations for service quality. In Dean (2007), she argued that customer orientation should incorporate commitment to customer needs and utilizing the available resources in gathering and efficiently managing customer feedback for effective decision making. A major contribution in Dean (2007) was the study's ability to empirically establish the mediating impact of perceived service quality in the relationships between customer orientation and caller satisfactions. The empirical findings in Dean (2007) theoretically established positive and significant relationships between customer orientation, perceived service quality and caller satisfactions.

Meanwhile, evidence within the extant relationship marketing literatures have shown that in the last twenty years, the concept of customer orientation has started to be very critical in the field of marketing management practices and theories. Particularly within the contact center industry where researchers like Dean (2007), McNally (2007), Roland and Werner (2005) to mention few have all theoretically established strong relationships between customer orientation, first call resolution, perceived service quality and caller satisfactions. One of the common arguments in support of the importance of customer orientation approach is that any organization that adopts it are more likely to establish the required customer service quality, increase first call resolutions, customer satisfaction and achieved the desired organizational objectives more efficiently than its competitors (Teehan and Tucker, 2010; Dean, 2007; McNally, 2007;

Roland and Werner, 2005; Sin et al., 2005; Yim et al., 2005; Brady et al., 2001; Lukas and Ferrell, 2000; Narver and Slater, 1990).

Contrary to the global arguments in support of customer oriented approach, Sin et al (2005) argued further that although it is observed that most empirical studies have been concentrating on the degree and measurements of the concepts. The extant literatures have long neglected the variations in the customer orientation dimensions or the features of the concepts as exhibited by each organization (Sin et al., 2005; Yim et al., 2005). Therefore the general literatures on customer orientation could be argued as not been widely practiced specifically by the contact center professionals in the manner advocated by Sin et al (2005) and supported in other literatures such as Yueh et al (2010), Dean (2009), McNally (2007), Roland and Werner (2005), and Yim et al (2005). These researchers have all empirically established one or more theoretical linkages between customer orientations, perceived service quality, first call resolution and customer satisfaction. Similarly are previous researches such as Kohli et al (1993) and Berry (1995) that cites several empirical studies that have suggest a linkage between the customer orientation, perceived service quality and customer satisfaction.

Other literatures have suggested that customer orientation is positively related to CRM adoption and customer relationships outcomes (Yueh et al., 2010; Dean, 2007; 2004; Eid 2007; McNally, 2007; James 2004). Customer orientation is said

to reflect a company's culture on customers' focus, needs and feedbacks (Dean 2007). In a very developed customer oriented approach, it is argued that there should be a continuous ongoing information collection and dissemination about customer and competitor for better decision making process (Kohli and Jaworski, 1993). The culture of customer orientation in a firm is considered to be very significant and positively related to call centers' ability in successfully resolving callers issues in their first call (Nguyen et al, 2007; Dean, 2007; and Eid 2007; Jayachandran et al., 2005; Feinberg et al., 2002). Other studies have also emphasized that there exist a stronger relationship between customer orientation and employee satisfaction, especially in the service industries where employees are the first contact with the customers and taking into consideration the length of time employees spend with customers in the customer contact center industry (Teehan and Tucker, 2010; Bhimrao and Janardan., 2008; McNally, 2007; Soon, 2007; Wang et al., 2006; Bang, 2006; Sarah and Meredith., 2006; Roland and Werner., 2005; Feinberg et al, 2002).

Given the aforementioned evidences and many more empirical findings that have establish customer orientation as an important antecedent of competitive advantage and business profitability (Brady et al., 2001; Narver and Slater, 1990), probing and measuring the impact of this orientation is said to have captured the attentions of researchers (Wang et al., 2006; Sin et al, 2005; Yim et al., 2006). This research postulates the following four hypotheses:

H1a: Customer orientation of the customer contact center is positively related to first call resolution.

H1b: Customer orientation of the customer contact center is positively related to perceived service quality

H1c: Customer orientation of the customer contact center is positively related to caller satisfaction.

3.3.2 Relationship between CRM Organizations, First Call Resolution, Perceived Service Quality, and Caller Satisfaction

CRM organization have been argued as an essential means through which fundamental changes in terms of how firms organized and conduct their business processes can be actualized (Wang et al., 2006; Sin et al., 2005; Yim et al., 2005). Implementing firms are encouraged to pay necessary attentions to the inherent organizational challenges in the CRM initiatives (Rajshekhar et al., 2006; Adam and Michael, 2005). Researchers like Yueh et al (2010), Wang et al (2006), Sin et al (2005) and Yim et al (2005) have all empirically tested and established that there exist a positive relationship between CRM organization and customer satisfaction. Included in their arguments is that the key considerations for any successful CRM to be implemented within the whole firm are organizational structures, the organization wide commitment of available resources, human resources management policies and employee job performance that they all positively worked together to influence first call

resolution, perceived service quality and customer satisfaction (Yueh et al., 2010; Sin et al., 2005; Yim et al., 2005).

By organizational structure means that CRM applications requires that the entire strategic business units in such firms should be design to jointly work together towards achieving first call resolution, perceived service quality, caller satisfactions, customer loyalty and cost reduction (Wang et al., 2006; Sin et al., 2005). For better efficiency of such organizational structure, it was advised that firms should incorporate productive process teams, cross discipline segment groups and customer focused departments (Aihie and Bennani, 2007; Sin et al., 2005; Yim et al., 2005). All the aforementioned structural designs are said to require a strong inter-functional coordination between the different departments, primarily for ease of attending and resolving customers issues (Rajshekhar et al., 2006). As argued by Yueh et al (2010) that many organizations have recently started emphasizing on the general importance of constructing a valid customer oriented knowledge based organization, where CRM organization will be targeted at building organizational competitive advantage. This argument was premised on the fact that firm's ability to efficiently organize its departments around CRM, will be potentially strengthened in building its internal relationship that will affect the desired capability of perceived service quality, first call resolution, service value and finally resulting into customer satisfaction and loyalty.

Given the cost involvement of CRM applications, Sin et al (2005) and Yim et al (2005) conceptualized and established the importance of organization's wide commitment of resources to the intended design of CRM structures as having a positive relationship with employee performance, first call resolutions and customer satisfaction. Also very important in their findings, they argued that CRM organization is the established link between through which human resources can be efficiently utilized in achieving the required service quality (Wang et al., 2006). Other relevant studies such as Dean (2007) and Roland and Werner (2005) have also empirically established that there exist positive relationships between CRM dimensions (specifically customer orientation), perceived service quality and customer satisfactions. Dean (2007), Roland and Werner (2005), Sin et al (2005) and Yim et al (2005) all empirically argued that this is a stage where firms need to logically instill in its customer service representatives the utmost importance of the CRM dimensions in order to positively influence first call resolution, perceived service quality, customer satisfaction and organization overall performance. In their concluding remarks they emphasized on four significant firms' internal marketing processes, which includes employee empowerment, effective internal communications, standard reward systems, and employee involvement as basic inputs to improved organization performance (Sin et al., 2005).

In view of this, this research Hypothesize that:

H2a: CRM Organization of the customer contact is positively related to First Call Resolution

H2b: CRM Organization of the customer contact is positively related to Perceived

Service Quality

H2c: CRM Organization of the customer contact is positively related to Caller

Satisfaction

3.3.3 Relationship between Knowledge Management, First Call Resolution, Perceived Service Quality, and Caller Satisfaction

With reference to existing literatures on knowledge based view theory of the firm, they argued thus that the primary reason for any company's existence is to possess the ability to create, transfer, and efficiently utilize its available knowledge (Acedo et al, 2006; Meso and Smith, 2000; Miller and Shamsie, 1996). Whereas, looking at this from the angle of CRM concept in Marketing, knowledge can be describe as whatever a company or individual has learnt from experience/practice or any empirical study of consumer data (Nguyen et al., 2007; Sin et al., 2005). This will bring us to the key facets of knowledge management dimension which includes a company's knowledge learning and generation, its knowledge dissemination and sharing, and finally knowledge responsiveness (Yueh et al., 2010; Sin et al., 2005; Yim et al., 2005).

As previously discussed that Knowledge about key customers in a company is important for a successful CRM application (Rajshekhar et al., 2006), importantly Knowledge about key customers are master plan to developing a learning relationship with current and potential customers (Nguyen et al., 2007). It avails

each organization the opportunity to a successful establishment of a stronger competitive strength in the market through first call resolutions and customer satisfaction (Roland and Werner, 2005; Dean, 2004; Feinberg et al., 2002). Thus, the available evidences shows that there exist positive relationship between employee knowledge acquisition and usage, improved service quality, first call resolution and customer satisfaction (Sin et al., 2005; Yim et al., 2005). Also very important under this heading is Customer information, such as customers' needs and preferences which may be captured directly or indirectly, via a two way communications in the company's interactive feedback system (Sin et al., 2005; Yim et al., 2005). As argued that the primary reason of knowledge generation is for affording a 360 degree customer view, through an appropriate business intelligence tools such as data mining, data warehouse, and data mart all which could assist a company to incorporate a customer information into its strategic business intelligence (Rajshekhar et al., 2006; Sin et al., 2005).

Therefore, it became very important for organizations to develop a sound mechanism for sharing the existing customer knowledge that will facilitate the concerted actions that could positively influence employee knowledge, first call resolution in customer issues and complaints and general performance in all the strategic business units of the firm (Yueh et al., 2010; Wang et al., 2006). Finally it is arguable that marketing information and knowledge management are now more concerned with better means of responding to customer demand, with the general believes that actions taken in a prompt manner not only enhance service

quality and resolutions to customers' complaints, but also foster positive long-term relationships with both employees and the customers (Dean, 2007; Roland & Werner, 2005; Antonio et al., 2005; and Sin et al., 2005; Yim et al., 2005).

This leads to the following four Hypotheses:

H3a: Knowledge management of the customer contact center is positively related to First Call Resolution.

H3b: Knowledge management of the customer contact center is positively related to Perceived Service Quality.

H3c: Knowledge management of the customer contact center is positively related to Caller Satisfaction.

3.3.4 Relationship between Technology Based CRM, First Call Resolution, Perceived Service Quality, and Caller Satisfaction

Although it has been established that consumers do complained about the time and efforts they required to have their individual questions answered or their problems resolved whenever they interact with contact centers (SQM, 2007; Call Centre.net, 2003). Equally important are arguments in favor of careful implementations of Screen Pops as an effective means of improving customer service representative performance, first call resolution and caller satisfactions while simultaneously reducing the contact center processing costs (SQM, 2007; Yim et al., 2005; Call Centre.net, 2003). Not only within the contact centers, CRM technologies are wide systems which could be integrated into various other systems like enterprise research planning systems etc, and both academic

researchers and practitioners agreed to the benefit inherent in CRM integration (Nguyen et al, 2007; Dean, 2007; and Eid 2007). Evidence from existing contact center literatures shows that several authors have argued in favor of FCR technology enablers through intelligent skill based routing as a good means of achieving FCR, perceived service quality and caller satisfaction (SQM, 2007; Callcentre.net, 2003). This is because through the application of CRM technologies such as first call resolution enablers, contact centers can match their customers and/or their call types with the appropriate customer service representatives' knowledge and skills.

Equally observed in the extant literatures is the suggestion that there are two aspects of CRM systems integration that are pertinent to the adoption of this technology. Eid (2007) describes the first part as integration into the existing organizational systems and applications, while the second integration is done across other functional customer contact touch – points. Part of the available evidence as identified by this research is that it is widely possible for researchers and practitioners to determine if an organization has put in place CRM technologies, but the major issues starts from measuring the effectiveness of CRM technology utilization in terms of user acceptance, and the desired operational performance which is argued to have since been neglected and has been confirmed as very vital to the implementing firm (Sin et al., 2005; Yim et al., 2005; Ravipa and Mark, 2004). The existing academic and practitioner literatures on CRM are mostly in the areas of customer database, contact centers, online

chatting systems, e-mails, Internets and some organizational group support systems (Nguyen et al, 2007; Adam and Michael, 2005; Sin et al., 2005; James, 2004).

Other literatures have argued that a company's ability to link the CRM system to different strategic business units such as marketing, finance, distribution, operations, and human resources will provide additional value to both internal and external users, and more importantly to the achievement of both employee and customers satisfactions (Aihie and Az-Eddine, 2007; Coltman, 2007; Nguyen et al 2007; Roland and Werner, 2005; Yim et al., 2005). If efficiently managed, CRM system is argued as having the capacity to assist organizations in handling customer queries and complaints more professionally with both accurate and timely information that would assist in reducing employee role stress, attrition rate and subsequently increasing employee job performance, perceived service quality, first call resolution and customer satisfaction (SQM, 2007; 2005).

Also very important in this area of research is the benefits inherent in the integration of every unit of the customer contact centers, i.e. inbound, outbound and web enabled via CRM technology that provides a great opportunity for seamless and transparent services in customer touch points. In relation to the above, the extent of a company's CRM integration will strengthen its ability to resolving customer's request in the first call resolution, its perceived service

quality and also give opportunity for achieving both customer and employee satisfactions (Dean, 2007; SQM, 2007; Sin et al., 2005; Yim et al., 2005).

The above has led this research into the following three Hypotheses:

H4a: Technology based CRM of the customer contact center is positively related to First Call Resolution.

H4b: Technology based CRM of the customer contact center is positively related to Perceived Service Quality.

H4c: Technology based CRM of the customer contact center is positively related to Caller Satisfaction.

3.4 Outcomes of CRM Adoptions

This research adopts Eid (2007) ideas of viewing CRM as a means of using Technology and Human Resources in understanding the behavior, values and attitudes of both internal and external customers for better decision making processes that will establish long term relationship. To this end, CRM applications is studied from the marketing perspectives, therefore the outcome of interest in this research work is Caller Satisfaction. Although previous researches in marketing literatures have strongly suggest that customer relationship management is a sub unit of a broader marketing management which is directly related to customer satisfaction and loyalty (Soon, 2007; Nguyen et al, 2007, Eid, 2007; Antonio et al, 2005; and Gummesson 2004).

The executives of the initial qualitative study shared the same view with the above extent literatures, when one participant states that *“Our company is very much aware of the strong link between having a good CRM integration with standard quality management control and a high level of both customer and employee satisfaction”*.

3.4.1 Relationship between First Call Resolution and Caller Satisfaction

This study will like to define First Call Resolution (FCR) as the percentage of Customers that do not need to callback in order to address their primary reason of calling an organization. Different authors such as Feinberg et al (2000), Roland and Werner (2005), Robinson and Morley (2006), Eric et al (2006), have empirically argued in favor of FCR as the major determinant of caller satisfaction. In Levin (2007b), he empirically establish that any contact center that achieved an increased customer satisfaction will likely experience a lower cost of operation, reduction in repeat callers, reduction in risk of existing customers defecting to the competitors, and finally achieving a higher employee job performance.

The results of the qualitative investigation of the customer contact service executives and several literatures equally indicate a high significant impact of FCR as a major determinant of caller satisfaction (Centerserve, 2010;

Callcentre.net, 2008; SQM, 2007; Feinberg et al., 2002; 2000). Also very important in their arguments are that FCR uniquely stands as a determinant of caller satisfaction differently from other service quality attributes. That is, a large portion of callers reasons of dissatisfaction via Interactive Voice Response are issues not resolved. This practically indicates that caller dissatisfaction could still exist despite the presence of efficient service delivery, but lack of FCR (Feinberg et al., 2000). Stephen and Michael (2008) in their review of call centers measurement have equally confirmed the significance of FCR by arguing that caller satisfaction will drop at an average of 15% in every callback a customer made to the call center. And that top industry firms are defined in terms of those that their caller satisfaction ratings are at an average of 86% (Stephen and Michael 2008).

Given the aforementioned empirical evidences in support of FCR as a major determinant of caller satisfaction (Stephen and Michael, 2008; Feinberg et al 2002; 2000) and that FCR is an outcome of the present or previous service encounters (SQM, 2007; 2005; Feinberg et al 2002; 2000). This research propose that the contact center customers can only evaluate (issues resolved or not and satisfied/ dissatisfied) with contact center service delivery only after they could interpret (perceive) the services. The above argument was the strong academic evidence upon which Dean (2007; 2004) tested the mediating impact of perceived service quality. Therefore this current study argued that first call resolution is an outcome of CRM applications that positively mediate the link

between CRM applications and caller satisfaction of the contact center customers.

Conclusively, based on the aforementioned facts and arguments in supports of the relationships between FCR, customer orientation, CRM organization, knowledge management, technology based CRM, perceived service quality and caller satisfactions, this research proposed the following direct and indirect hypotheses:

H5a: First Call Resolution of the customer contact center is positively related to
Caller Satisfaction.

Mediating Hypothesis

H5b: First Call Resolution of the customer contact center positively mediates
customer orientation and Caller Satisfaction.

H5c: First Call Resolution of the customer contact center positively mediates
CRM organization and Caller Satisfaction.

H5d: First Call Resolution of the customer contact center positively mediates
knowledge management and Caller Satisfaction.

H5e: First Call Resolution of the customer contact center positively mediates
technology based CRM and Caller Satisfaction.

3.4.2 Relationship between Perceived Service Quality and Caller Satisfaction

A lot of empirical studies have shown compelling evidence that there is a direct relationship between service quality and customer satisfaction and loyalty (Dean, 2007; Teas R.K., (1993a&b; Zeithaml et al 1993; 1985). According to Dean (2007), Perceived service quality is customers' assessments of the overall superiority of the services provided by the firm, with specific reference to the service interactions and outcomes (Dean 2007). In the synthesis of other previous work, Brady and Cronin (2001b) established three dimensions of overall service quality, which are interactions, outcomes, and environmental quality. Given the telephony nature of this research, the researcher is excluding the physical environment. Comments from the executives in the initial pilot study indicated a consistence similarity with Brady and Cronin's proposed model, when a manager relate interaction quality with Agent behavior, while the outcome dimension was related to first call resolution.

Other comments from the executives equally agreed with the literature that says customer perceived quality should include all product and service attributes that are designed to meet customer requirements, including those attributes that differentiate it from the competitors'. Customer perceived service quality is a broader marketing concept because it includes consideration of various service attributes, ranging from any of the below as stated by Mohr (1998).

- (1) Future expectations;
- (2) Value: quality/price;
- (3) Excitement, surprise, and delight;
- (4) Fast response;
- (5) Delivery of solutions; and
- (6) Consistency: defect and error-free (Mohr, 1998).

Following the arguments in support of the above evidences, this research propose that the contact center customers can evaluate (be satisfied/dissatisfied) with contact center service delivery only after they could interpret (perceive) the services. This is because this proposition is applicable to the transaction specific as well as the global perspectives, a strong reason upon which Dean (2007) empirically tested the mediating impact of perceived service quality between customer orientation and customer loyalty. More specifically to the customer contact centers, this research propose that the customers may perceive contact center service quality immediately after the service delivery as well as in a later time and compare their initial perceptions with their individual predictive expectations. Consequently these perceived service quality, customers' expectations, and the disconfirmation would then result in customer satisfactions/dissatisfactions. Several other studies in marketing literatures have also found that there exist positive relationships between customer expectation, perceived service quality and customer satisfaction in other service industry (Dean, 2007; 2004; Roland and Werner, 2005; Fornell et al., 1996).

Most important of these literatures is Dean (2007&2004) which empirically shows that perceived service quality of the contact centers positively mediates the link between customer orientation and caller satisfactions. Part of the

recommendations that was given by Dean (2007) is that caller satisfaction ought to be separately measured from the service quality performance so that the organization could be availed with the opportunity of better understanding customers' perceptions of its technology implementations and service quality performance (Dean, 2007; 2004). Based on the evidence above and many other relevant arguments in support of the mediating role of perceived service quality in the relationship between CRM implementations and call center performance, this research hypothesizes that:

H6a: Perceived Service Quality of the customer contact center is positively related to Caller Satisfaction.

Mediating Hypothesis

H6b: Perceived Service Quality of the customer contact center positively mediates customer orientation and Caller Satisfaction.

H6c: Perceived Service Quality of the customer contact center positively mediates CRM organization and Caller Satisfaction.

H6d: Perceived Service Quality of the customer contact center positively mediates knowledge management and Caller Satisfaction.

H6e: Perceived Service Quality of the customer contact center positively mediates technology based CRM and Caller Satisfaction.

3.5 Chapter Summary

This chapter has extensively described the hypothesized research model that was empirically investigated in this study. The chapter critically argued on the need to determine the impact of CRM applications on inbound call centers and why the operationalized constructs best suit the framework. Each of the seven components in the research framework was critically discussed to ascertain their linkages upon which the 14 direct relationships were hypothesized. Observably, this study has primarily investigates the relationship between CRM dimensions and call center key performance constructs. Next to this chapter is chapter 4 which extensively discuss the methodology that was adopted to answer the research questions.

Chapter 4

Research Methodology

4.1 Introduction

Chapter four mainly discusses the research methods that are used in the pilot interview and main empirical survey. This chapter starts by introducing the research design, population and sampling, operational definitions of constructs, and survey type. Information with regard to the data collection processes in the main explanatory study and data analysis strategies are also discussed in detail.

4.2 Research Designs

Due to the potential difficulty inherent in gaining access to the targeted CRM firms, this research has used a cross-sectional study given that it is more appropriate than a typical longitudinal study (Hair et al., 2006). Though longitudinal studies are said to have provided researchers the ability to observe and able to test selected parameters over time with the same individuals or set of organizations (Cavana et al., 2001). Other advantages of longitudinal study are that it gives opportunity to study the linkages between complex variables and interactions over time (Bowen & Wiersema, 1999).

For this research, the researcher has used cross-sectional design for this study because of time constraint, and also given that the study's primary aim is to validate the proposed model. Time dimension is seen as very important to this

research so as to be able to determine the impact of CRM on contact center operations and caller satisfaction at a particular point of time. Importantly, respondents were asked to supply information on their 2009 CRM applications, perceived service quality, first call resolution and caller satisfactions. This type of yearly data requirement can best be justified through a typical cross-sectional design, hence the use of longitudinal study is not appropriate in this current study.

4.3 Population and Sampling

A research population comprises of a collection of data and information whose properties are to be analyzed in a given research (Hair et al., 2010; Cavana et al., 2001). Population could be defined as the *complete* collection of the subject of interest to be studied in a research (Cavana et al., 2001). A sample could be defined as *part* of the target population of interest to be studied; it can be statistically referred to as a sub-collection that is selected from a population of interest. Meanwhile, population sampling can be defined as the process through which any group of representative elements or individuals are selected from a given population for the primary purpose of statistical analysis. Importantly, the population for this current study is the officially registered 600 call/contact centers as detailed in the directory of customer relationship management and contact center association of Malaysia. Therefore, the main use of inferential statistics in this study is to use the obtained information from the selected sample out of the

600 call centers in Malaysia to infer the impact of CRM on caller satisfaction in Malaysia contact center industry (Hair et al., 2010).

This is because evidence from both academics and practitioners has established that the common goal of conducting a survey research is to mainly collect data that is representative of a population to be studied (Hau and Marsh, 2004; Van et al., 2002; Cavana et al., 2001; Bartlett et al., 2001; Krejcie and Morgan, 1970). As such, several researchers have used information that is gathered from different surveys to generalize the findings that are drawn from a population sample, specifically within the limit of a given random error (Bartlett et al., 2001; Cavana et al., 2001).

4.3.1 Sampling Size Determination

However, researchers like Bartlett et al (2001) argued that there are two major consistent flaws in any sample selection i.e. (1) Researchers disregard for any problems arising from sampling error when determining their sample size, and (2) Researchers disregard for problems arising from the response and non-response biases. In this regard, they emphasized the need for researchers to critically view sample size determinations and issues with non-response as an essential conditions in any quantitative survey design (Bartlett et al., 2001).

Given the current 600 call centers in Malaysia, below is a detail analyzes of how this study has arrived on its intended sample size of 400 call centers using the

Cochran's (1977) formula for sample size determination. In fact the obtained sample size of 400 statistically falls within the range of sample size that is said to be valid for analysis with instruments such as Structural Equation Modeling (Byrne, 2010; Eid, 2007). Cavana et al (2001) argued that a major advantage in quantitative research is the researcher's ability to use a smaller group of respondents to make appropriate inferences about any larger population that might be prohibitively very expensive to study. According to Bartlett et al., (2001) the big question to ask is how large of a given sample that is required by a researcher to be able to infer his/her research findings back into the population of study? Importantly, any survey designs is said to be structured towards minimizing both the alpha error (which could be define as finding the difference that does not really exist in a given population of study) and the beta error (which could be define as researchers inability to find the actual difference that actually exist in a particular population of study (Bartlett et al., 2001).

From the synthesis of previous studies and given the fact that the contact center research empirically falls under the continuous data (Roland & Werner, 2005), this study has decided to adopt the Cochran's (1977) formula for sample size determination (Sekaran, 2003; Bartlett et al., 2001; Cavana et al., 2001). Cochran originally adapted this formula from Krejcie and Morgan (1970), where they had empirically established it's suitability in the selection of continuous data (Bartlett et al., 2001). Consequently, Bartlett et al (2001) advised that researchers should take precautions in selecting their sample size from any of

the widely available sample size formulas and tables, given the assume alpha of .05 and the established degree of accuracy of .05. The general believe to this is that researchers will be availed with a series of numbers, normally ranging from the smaller numbers in continuous variables to the larger numbers in categorical or dichotomous variables (Bartlett et al., 2001; Krejcie and Morgan, 1970).

In determining the error estimation of the sample size, Cochran's (1977) formula mainly utilizes two key factors: (1) called the "margin of error" which primarily depicts the extent of risk that the researcher is willing and able to accept in the study, and (2) called the "alpha level", that is the level of an acceptable risk that the researcher is willing and able to accept that its study true margins of errors actually exceeds its study acceptable margins of error. This second factor is mostly called Type I error, which is probability that the actual differences revealed in a statistical analyses of a study really do not exist. Alternate to this is called Type II error which is also known as the beta error. The type II error mainly occurs when the statistical procedures of a study reports no significant differences when in fact these estimated differences do really exist (Bartlett et al., 2001). For the alpha Level to be used in determining the sample size, the extant literatures in most educational researches have stipulated either .05 or .01 (Bartlett et al., 2001).

Very important to note is that the alpha level has been incorporated into the Cochran's formula through the utilization of the t-value for the selected alpha

level e.g., the t-value for the alpha level of .05 is 1.96 for any sample sizes that are above 120 (Hau and Marsh, 2004; Van et al., 2002). Though in general, most business and educational researches favored the use of alpha level of .05 (Van et al., 2002), because the alpha level of .10 or even lower is said to be best utilized when conducting researches in any areas similar to identifying the marginal relationships between variables (Bartlett et al., 2001). On the other side is the intended acceptable margin of errors. For this, Krejcie and Morgan (1970) proposed a general rule that is relative to the acceptability of margins of errors in social and educational researches as follows: (1) for the continuous data as in this current study, a 3% margin of error is said to be acceptable, while for the categorical data, a 5% margin of error is said to be acceptable (Krejcie and Morgan, 1970).

Given that the scope of this study falls under the continuous data along side the proposed seven-point scale, the researcher has proposed an alpha level of a priori at .05, and has set the anticipated level of acceptable error to be 3%, with the estimated standard deviation of the proposed scale to be 1.167. Below is the Cochran's sample size formula that is conceptualized for any continuous data and how it applies to this current study.

$$n_o = \frac{(t)^2 * (s)}{(d)^2}$$

$$n_o = \frac{(1.96)^2(1.167)^2}{(7 \cdot .03)^2} = 118 \dots\dots\dots \text{eq (1)}$$

Please note that the t-value for the alpha level of .05 is 1.96 for any sample sizes that are above 120. While (s) = the estimate of the standard deviation obtained from the population which is = 1.167 (calculated by dividing the 7 point scale with the possible values of range i.e. $7 - 1 = 6$, i.e. $7/6 = 1.167$). D = the acceptable margin of errors that the researcher is willing to accept for its study = .05 (meaning the researcher is willing to accept a 5% margin of error for this study). Depending on this formula for a population of 600 as in this study, the expected sample size ought to be 118 as calculated in equation (1). But however, given that this sample size actually exceeds expected 5% of the population ($600 \cdot .05 = 30$), the proposed alternate Cochran's (1977) corrections formula would be used in calculating the final sample size. Thus, below is table 4.1 that aptly depict the minimum numbers of regressors that are allowed for sampling in any business research:

Table 4.1: The Minimum Numbers of Regressors that are allowed for Sampling

Sample Size for:	Maximum numbers of regressors if ratio is:	
	5 to 1	10 to 1
Continuous data: n= 111	22	11
Categorical data: n= 313	62	31

Source: Bartlett et al., (2001).

As could be seen in table 4.1, if a researcher utilizes the optimal ratio of five to one with continuous data, the numbers of regressors (i.e. independent variables) in its multiple regression models would automatically be limited to 22. Opportunities are given to larger numbers of regressors to be used under the situation provided above. Importantly, the continuous data for this current study is using 40 independent items for the multiple regression analysis and also making use of the optimal ratio of ten to one, the rule of thumb indicate that sample size should be increased from 111 to 400. The new sample size of 400 is arrived at by taking the numbers of items in the independent variables that are to be entered in the multiple regressions (40) and multiplying it by the number of the ratio chosen $(10) = 40 \times 10 = 400$

$$n_1 = 400 \dots \dots \dots \text{eq (2)}$$

For this current study that the population size = 600, the sample size = 400. Please note that, n_0 = the required return sample size as obtained in Cochran's formula = 111 in eq (1). While n_1 = the required return sample size because the sample > 5% of population. The above findings are in line with the proposed tables by Sekaran (2003), Cavana et al (2001), Bartlett et al (2001) and Cochran (1977).

4.3.2 Sampling Design

For ease of generalizability, this study has adopted simple random sampling design. As defined, simple random sampling design is a sampling method that involves giving every members of the population equal chance of being selected from a target population using a specified techniques such as excel software as the basis of sample selection (Hau & Marsh, 2004; Van et al., 2002; Cavana et al., 2001).

As explained by Cavana et al (2001), the best common way of selecting the members for a target sample population using the simple random sampling is by simply giving the total number of units in the total population equal chance of being selected. The outcome of this selection has served as the standard marker for selecting the sample units from within the total population. For this current study, given the anticipated random group of 400 from a total population 600 call centers in Malaysia using the simple random sampling design as specified by Cavana et al (2001). Thus, this research has simply made use of excel software analysis in selecting the 400 sample size at random from the list of 600 call centers as alphabetically listed by the CRM and contact association of Malaysia.

4.3.3 Unit of Analysis

As defined, a unit of analysis is who or what that is being studied in a given research. Evidences from the social science research have established a unit of analysis as an organization, an individual, a social interaction or a group of

organization/individual. The target working populations for this research work are from the 600 contact centers companies in Malaysia, as each of them have been established to have implemented CRM applications on different stages (Callcentre.net, 2003). The contact center managers are seen as most suitable respondent for this research because they are the primary users of CRM tools and processes, and also serve as the major decision maker between the customer and the contact center (Roland & Werner, 2005; Callcentre.net, 2003; Feinberg et al., 2000). Meanwhile, this research will like to emphasize that customer based performance metrics such as first call resolution and caller satisfactions were subjectively asked from managers based on their 2009 customer satisfaction surveys.

There are empirical evidences on previous researches that have used contact center managers as their main respondent such as Roland & Werner (2005), Feinberg et al (2000). Another good industry reference is the internationally recognized industry benchmarked study that was conducted by the Call Center.net (2008; 2003) that both emphasized on the appropriateness of categorizing contact center expertise and major decision making into the following: Call Centre manager (30%), Finance manager/director (19%), CEO/managing/director/president (17%), Marketing manager/director (14%), IT manager/director (12%).

4.4 Operationalization of CRM and Caller Satisfaction Constructs

The measure of CRM implementations' outcome performance in this present study was primarily generated through random selections of respondents within the call center industry in Malaysia. This type of respondent generated company performance measures have continuously been used in both CRM and call center literatures (Yueh et al., 2010; Dean, 2009; Callcentre.net, 2008&2003; Eid, 2007; SQM, 2007; Sin et al., 2005; Yim et al., 2005), hence this current study deem it fit to use it. More importantly, this CRM implementations' outcome performance measure that is used in this research comprised of both the objective and subjective measures. Below are some sections on dependent, independent and mediating variables that detailed out how these objective and subjective measures were obtained from the targeted respondents.

4.4.1 Dependent Variable

4.4.1.1 Caller Satisfaction

Caller Satisfaction is a component of overall Customer satisfaction which could be describe as the psychological concept that captures the feelings of well-being and pleasure that results from customers' ability to obtain what they hopes for and expects in calling the customer service department of their marketers/service providers (Dean, 2009; McNally, 2007; Roland and Werner, 2005; Feinberg et al., 2002; 2000). Empirically, researchers have established two general

conceptualizations of customer satisfaction, namely, the transaction specific satisfactions and the cumulative satisfactions (Taylor and Baker 1994; Zeithaml and Parasuraman, 1993). For this study, caller satisfaction belongs to the transaction specific satisfactions which have been defined as the customer's evaluations of his or her experiences and subsequent reactions to such specific service encounter (Dean, 2009; Stephen and Michael, 2008; Levin 2007a&b; Eric et al., 2006; Timothy et al, 2006; Kode et al., 2001; Feinberg et al., 2000).

Table 4.2 below explicitly show sources of the scale development for the dependent variable (caller satisfaction), that was used in the questionnaire. This new scale provided one (1) item measurement instrument used in the structural equation model (Yueh et al., 2010; Yim et al., 2005; Feinberg et al., 2002; 2000). For more information on these construct, attached are appendices A and H that contain detailed alignments of the questionnaire items as they relate to each constructs for your perusal.

Table 4.2: Measures of Caller Satisfaction Construct

Dimensions	Items	Source
Caller Satisfactions	Based on your 2009 customer surveyed, how would you rate your organization in terms of callers that reported "top box" customer satisfaction rating	SQM (2005), Yim et al., (2005), Feinberg et al (2002; 2000)

4.4.2 Independent Variables

Tables 4.3, 4.4, 4.5 and 4.6 shows the four independent variables that were used in this study: customer orientation (CO), CRM organization (CRMO) knowledge management (KM), and technology based CRM (TBCRM).

4.4.2.1 Measures of Customer Orientation (CO)

Customer Orientation has been defined as the degree to which an organization emphasizes on meeting customer needs and expectations in order to establish long-term customer relationships and organization's profitability (Dean, 2007; Sin et al., 2005; Roland & Werner, 2005; Kohli et al, 1993). Dean (2007) in her study of contact center empirically divides customer orientation into 2 categories i.e. (Customer focus and Customer feedback). For this research, operationalization of customer orientation measurement was based on ten items that was adapted from Dean (2007), Roland and Werner (2005), Sin et al (2005) and Yim et al (2005), with seven point Likert-type of scale. Notably the coefficient alphas for all the four independent variables were above the 0.70 cut off criterion as suggested Kaiser (1974). With specific examples of Sin et al (2005) that achieved a cronbach alpha of 0.847 in key customer focus, 0.865 in CRM organization, 0.833 in knowledge management and lastly 0.853 in technology-based CRM. Below is table 4.3 that detailed out these ten items on the questionnaire for measuring CO.

Table 4.3: Measures of Customer Orientation Construct

Dimensions		Items	Source
Customer Orientation	1	Customer is the center of strategic planning in the firm	Yueh et al (2010); Dean (2007); Sin et al (2005); Roland & Werner (2005); Yim et al (2005)
	2	The company is committed to meeting customer's needs and expectations	
	3	There is an established framework for getting customers feedback	
	4	Different processes for tracking customer's expectation are implemented	
	5	Customer database are frequently updated	
	6	There is strong Management support and commitment in using customer Knowledge in decision making process	
	7	There is frequent dissemination of customer information throughout the firm	
	8	All service standards are based on consistent analysis of customers' needs	
	9	Our competitive advantage is based on building and maintaining long-term customer Relationships	
	10	My organization makes an effort to find out what our key customer needs	

4.4.2.2 Measures of CRM Organization (CRMO)

CRM organization is the alignment of viable business strategies, customer information and technology on the existing organizational structures and cultures, with the primary aim of achieving long-term customer satisfaction and organizational profits (Coltman, 2007; Eid, 2007; Sin et al., 2005; Kohli et al, 1993). Several authors have empirically argued that a successful CRM organization depends mostly on three factors i.e. organizational structure, Organization wide commitment of resources, and human resources management (Yueh et al., 2010; Wang et al., 2006; Sin et al., 2005; Yim et al., 2005).

Apart from other studies that studied CRM organization in other industries, this research observed that Yim et al (2005) originally surveyed outbound unit of the call centers with some sets of measurement instruments. Relying on the suggestions from selected executives at the initial qualitative study, this research carefully selected ten most related measurement items for CRM organization within the inbound call centers. Below is table 4.4 that detailed out the list of ten theoretical measurement items for CRM organization in inbound call centers:

Table 4.4: Measures of CRM Organization Construct

Dimensions		Items	Source
CRM Organization	1	Customer centric performance standards are established and monitored at all customer touch-points	Yueh et al., (2010); Sin et al (2005); Yim et al (2005)
	2	My organization has the sales and marketing expertise and resources to succeed in CRM	
	3	Our employee training programs are designed to develop the skills required for acquiring and deepening customer relationships.	
	4	My organization has established clear business goals related to customer acquisition, development, retention, and reactivation	
	5	My organization commits time and resources in managing customer relationships	
	6	Employee performance is measured and rewarded based on meeting customer needs and on successfully serving the customer.	
	7	Our organizational structure is meticulously designed around our customers	
	8	All employees in my organization understand and share the common goal of building and maintaining customer relationships	
	9	CRM responsibilities of each employee are clearly defined, assigned and understood	
	10	Our top management team spends much time with key customers	

4.4.2.3 Measures of Knowledge Management (KM)

Knowledge Management is a means with which companies capture, organize, manipulate, and share implicit and explicit data with both internal and external users (David and Wendy, 2009; Eid, 2007; Sin et al, 2005). This study will like to emphasize the great difference between information and knowledge, because Eid (2007) argued that an organization is said to possess Knowledge only when the available information has been analyzed and effectively used to implement appropriate strategic decisions and actions. Knowledge Management decision making processes is said to be divided into three broad stages that run concurrently in the company: namely, Customer information acquisition, Customer information sharing and Customer information utilization (Yueh et al., 2010; Acedo et al., 2006; Wang et al., 2006; Sin et al., 2005; Yim et al., 2005; Meso & Smith, 2000).

Based on available evidence from the extant literature review, this study selected ten most related measurement items for KM within the inbound call centers. Importantly, this study based its selections of these items on CRM characteristics and applications obtained from (a) existing literatures (Yueh et al., 2010; Yim et al., 2005), and (b) industry reports (Centerserve, 2010; CCAM, 2009; Callcentre.Net, 2008; SQM, 2007) Below is table 4.5 which contain the ten items that were used in measuring knowledge management within the call centers:

Table 4.5: Measures of Knowledge Management Construct

Dimensions		Items	Source
Knowledge Management	1	My organization's employees are willing to help customers in a responsive manner.	Yueh et al., (2010); Wand et al (2006); Sin et al (2005); Yim et al (2005)
	2	Customer can expect exactly when services will be performed	
	3	My organization fully understands the needs of our key customers via knowledge leaning.	
	4	My organization provides channels to enable ongoing, two-way communication with our key customers and us.	
	5	Customers can expect prompt service from employees of my organization.	
	6	My organization shares customer information across all points of contact	
	7	New knowledge acquired at various touch-points of our organization is codified so that the new knowledge can be disseminated and shared easily amongst all staff	
	8	My organization believes that mining data intelligently is a source of competitive advantage	
	9	Knowledge is shared to leverage the value of customer information	
	10	My organization has sound mechanisms for effective knowledge dissemination	

4.4.2.4 Measures of Technology Based CRM (TCRM)

Technology Based CRM can be describe as any technology or systems that assist organizations in collecting, storing, analyzing, and sharing both current and potential customers' information in ways that have greatly enhance employees' ability in responding to the needs and request of the individual customers and thereby leading to better ways of attracting and retaining customers (Yueh et al., 2010; David and Wendy., 2009; Kyootai and Kailas., 2007; Nguyen et al, 2007; Sin, et al., 2005; Yim et al., 2005). Among the

common CRM technologies in the contact centers are: automatic call distributor (ACD), interactive voice response (IVR), workforce management software (WMS), computer telephony integration (CTI), predictive dialers, e-learning systems etc. Like every other CRM dimensions constructs, ten most related measurement items were selected based on guides from available literatures and suggestions from practitioners. Below is table 4.6 that contain these lists of ten most related measurement items for technology based CRM within the inbound call centers:

Table 4.6: Measures of Technology Based CRM Construct

Dimensions		Items	Source
Technology Based CRM	1	My organization has the right technical personnel to provide technical support for the utilization of computer technology in building customer relationships.	Yueh et al (2010); Wang et al (2006); Sin et al (2005); Yim et al (2005)
	2	My organization has the right software to serve our customers.	
	3	My organization has the right hardware to serve our customers.	
	4	Individual customer information is available at every point of contact.	
	5	My organization maintains a comprehensive database of our customers.	
	6	Our computer technology can help create customized offerings to our customers	
	7	Our information systems are designed to give comprehensive data about all aspects of our customers, so that we can be responsive to them	
	8	IT facilitates the management of customer relationships	
	9	My organization has the technical expertise and resources to succeed in CRM	
	10	We have mechanisms to encode new knowledge about our customers into formal rules or policies that can be shared between organizational participants and organizational Subunits	

4.4.3 Mediating Variables

Both perceived service quality (PSQ) and first call resolution (FCR) are two separate scales that are theoretically extracted to measure their influences on the relationships between CRM dimensions and caller satisfaction model within the inbound unit of call centers/contact centers. Below is sections 4.7 and 4.8 that outlined these sets of measurement items for these two mediating variables.

4.4.3.1 Measures of Perceived Service Quality (PSQ)

Notable among call center and CRM literatures that has empirically established the mediating role of perceived service quality on caller satisfaction is Dean (2007; 2004). In the contact center industry, perceived service quality has been defined as the customers' overall assessments of the superiority of a firms' service with respect to its service interactions and the subsequent outcomes (Dean, 2007; Cronin & Taylor, 1994; 1992). Perceived service quality is a broader marketing concept because it includes consideration of various service attributes, ranging from any of the following: Future expectations; Value: quality/price; Excitement, surprise, and delight; Fast response; Delivery of solutions; and Consistency: defect and error-free (Mohr, 1998).

A broader view of the aforementioned attributes was considered by Brady et al (2001) when they established three service quality dimensions: interaction, environmental, outcome quality. Given the telephony context under which this current study is conducted, Dean (2007) empirically argued that researchers should exclude the physical environment and integrate interaction quality as the

customer service representative behavior, and the outcome dimension as the waiting time. Below is table 4.7 that aptly depicts the seven measurement items that were used in measuring the impact of PSG on CRM and call center performance model:

Table 4.7: Measures of Perceived Service Quality Construct

Dimensions		Items	Source
Perceived Service Quality	1	My organization makes sure that customers doesn't wait too long in a queue for service	Dean (2007; 2004)
	2	My organization customer service consultant are taking enough time to attend to customers and not rushing the customers	
	3	My organization customer service consultant are assisting the customers to define their problem or question them more specifically	
	4	My organization customer service consultant are being able to solve different problems	
	5	My organization customer service consultant are explaining steps in the process to customers (or reasons for problems)	
	6	My organization customer service consultant are treating the customers with empathy	
	7	My organization customer service consultant are having the authority to solve customers' problem	

4.4.3.2 Measures of First Call Resolution (FCR)

First call resolution is the percentage of calls that does not requires any further contacts or callbacks to address the same customer's reason for previously calling the organization (Stephen and Michael, 2008; Levin 2007a&b; Eric et al., 2006; Timothy et al, 2006; Kode et al., 2001; Feinberg et al., 2000). Very important to note is that first call resolution is measured through an observed variable that is based on the outcomes of selected company's 2009 first call resolution and customer satisfaction surveys.

Part of what informed this decision is that at the onset of this study, the researcher developed a set of ratio scales to measure the individual contact center performance in terms of their first call resolution and caller satisfaction. But the proposed ratio scales were turned down by the chosen managers at the face validity as been a subject of privacy and confidentiality. These group of experts alternatively suggested that it is best to use the industry standard which might ask the managers to rate their company's performance based on their previous customer survey. Whereas, these managers' suggestion are theoretically in line with previous studies such as Roland and Werner (2005), Yim et al (2005) and Feinberg et al (2002; 2000) that all asked managers to rate their company's performance based on the percentage of their callers surveyed that report top box first call resolution (FCR) and caller satisfaction.

The term "top box" refers to the callers that reported that their issues or reason for calling was resolved in the first call, and this primarily depends on whatever rate the company wants the top score to be measuring. Please refer to appendix H to visualize how this metrics are determined. Below is table 4.8 which shows the measurement instrument that is used in measuring FCR within the inbound call centers, with specific emphasis on Yueh et al (2010), Yim et al., (2005) and Feinberg et al (2002; 2000).

Table 4.8: Measures of First Call Resolution Construct

Dimensions	Items	Source
First Call Resolution	Based on your 2009 customer surveyed, how would you rate your organization in terms of callers that have satisfactory resolution on the first call	SQM (2005), Yim et al., (2005), Feinberg et al (2000)

4.5 Data collection process in the main explanatory Study

Although there are many methods of collecting data via survey, in this research work, primary data for statistical analysis was randomly collected through questionnaire design among the CRM contact centers in Malaysia as alphabetically listed by the CRM and contact association of Malaysia. The researcher has adopted a second qualitative measurement to affirm research findings and assisted in the interpretations of the research results.

4.5.1 Questionnaire Design

Questionnaire design is a unique and very important stage of any research, and as observed from different extant literatures that the two main objectives of designing a questionnaire. The first one is that questionnaire designs gives opportunity to capture the numbers of targeted respondents, and two it assist in avoiding and reducing probable measurement error through logical arrangements of the questions in a manner that will best be understood by the respondents

(Clark, 1989). As proposed by Churchill and Peter (1984), this research is guided by the nine step procedure in developing its research questionnaire.

4.5.1.1 Types of Questionnaire

Questionnaires could be defined as a set of questions itemized to provide information on certain variables based on the feelings of other people called the respondent. These questions may be open ended, dichotomous and/or close ended. For this research, the questions are close ended because they restrict the respondents within the set of provided alternative answers in measuring their objective and subjective feelings on the impact of CRM implementations on caller satisfactions in their respective companies. To efficiently achieve this, the researcher has embarked on adequate standardization of questions through a well structured undisguised and self administered questionnaire. This effort is very necessary because the expected responses are important to the achievement of a reliable statistical analysis in the final results (Hair et al., 2006).

4.5.2 Rating scales for the Response

The usual rating scales for measuring the latent construct in social science research was used in this current study (Churchill and Peter 1984). The researcher has structured all constructs in the measuring instrument to use 7-point Likert type of scale, including the independent, mediating and the dependent variables. This is despite some other literatures have argued on the benefits inherent in 5-point Likert type of scale, but still a 7-point Likert scale is

said to provide detail feedback and also not subjecting the respondents into any undue cognitive burden (Hair et al., 2010; Cavana et al., 2001; Churchill and Peter 1984). Thus, to achieve a better optimal result in information processing and scale reliability, 7-point Likert scales is said to be efficient (Churchill and Peter 1984).

4.5.3 Content Validity

To establish efficiency in the data collection processes, the researcher has conducted a pre-test with five customer contact center managers whom are considered as CRM experts, and five academic from University Utara Malaysia. Authors like Cavana et al (2001) and Krejcie and Morgan (1970) have established ten experts as sufficient for instrument refinements and verification in any content validity of a research questionnaire. Following this understanding, the questionnaire for this research was thoroughly reviewed by each of the ten experts so as to ensure adequacy in its understanding, face validity, comprehensibility, and the reliability of measures that have been employed. While the academic respondents primarily focused on content validity, the CRM experts focused on the face validity as it relate to their industry practices. They both assisted in checking the extent to which each items reflects the proposed constructs, and whether the questionnaire response formats instructions are appropriate with the item statements and the chosen scale points.

The feedback from the respondents indicated that the proposed questionnaire is easy to understand and able to be completed within the suggested timeframe of 15 minutes. The CRM experts equally indicated that the respondents will be comfortable with the proposed seven-point Likert scale. In sum, the feedback has avails the researcher the opportunity of making several modifications as suggested by the experts. Notably the wordings of questions for two constructs were modified for easy clarification. Moreover there was rearrangement of some important questions so as to improve the general flow and sequencing of the proposed questionnaire. Finally, for better understanding of the research objectives, the researcher has provided a detail definition of CRM at the cover page; and attached a definition of terms for all the constructs at the back page as alternative means of reference to the respondents.

4.5.4 Pilot Study

To establish the reliability of the selected measurement instruments before the collection of the main empirical study, this study has conducted a pilot study with the use of convenience sample of 40 call center managers. Given the industrial experience of the researcher he was allowed to sit with the respondents while answering the questions so as to identify any difficulty in wording and ease of completion. Based on this pilot data, the researcher calculated the reliability for each of the measurement instruments, excluding first call resolution and caller satisfactions that were collected based on their 2009 customer survey.

According to hair et al (2010) and Byrne (2010) a major criteria for selecting past instruments is their individual internal consistency obtained through the calculations of Cronbach's Alpha reliability coefficients. Below is table 4.9 that depicts a detailed list of results for reliability as obtained from the pilot study. The reliability estimates actually ranges from .79 to .89 more than the required 0.7 cut off criterion that is generally regarded as sufficient for empirical research (Nunnally & Bernstein, 1994), indicating that the selected scales are relatively reliable. During the pilot test the researcher also identified some likely problems in the questionnaire contents and the actual time taken. Necessary corrections were effected before collecting the main empirical survey. For detail verification of the study questionnaire, please kindly refer to appendix A.

Table 4.9: Reliability Cronbach Alpha (Pilot Study)

Construct	Cronbach Alpha
	Pilot Study
1. Customer Orientation	.792
2. CRM Organization	.837
3. Knowledge Management	.823
4. Technology Based CRM	.899
5. Perceived Service Quality	.832

4.5.5 Follow-up Procedures

For a study like this that entirely depends on the completed questionnaires as its means of data collection, there is need for a well structured follow-up procedure. Very important to be reminded is the sensitivity of the nature of the survey,

obtaining the outcome of a company's relationship with the customers is very sensitive, and really required a strategic follow up procedures (Clark, 1989). Part of the follow-up procedure that the researcher has employed include but not limited to email and telephone call to each of the participating company after two weeks of delivering the questionnaires.

The researcher also continue to make telephone calls and email follow-up to each of the participating company until they return the completed survey, show interest in participating, or decline to final participate. But despite these strategies, it was quite unfortunate that the total numbers of returned questionnaires was 168, a response rate that is not up to 50% of the 400 minimum sample size requirements for the this study.

4.6 Data Analysis Strategy

To achieve reliability in data analyses and hypotheses testing, the researcher has made used of several statistical tools from version 14 of SPSS software and AMOS 16 software. Among the various tests conducted are test of non-respondent bias, data screening and preliminary analyses for missing data, outliers and normality. Others are factor and reliability analyses to test for goodness, validity and reliability of measures, descriptive statistics to assist in describing the characteristics of the respondents, correlational analysis to assist in describing the relationship that exist between CRM and call center variables and finally, regression analyses to test the theorized impact of CRM on caller

satisfactions as well as the mediating influence of first call resolution and perceived service quality on CRM and caller satisfaction relationships.

4.6.1 Research Instruments for Data Analysis and Hypothesis testing

After the collection of sufficient data that matches the minimum sample size requirements, the researcher has coded, summarized and analyzed the data with SPSS, factor analysis and structural equation modeling (AMOS). Below are detail explanations on the instruments that were employed in analyzing and interpreting the data that was collected for the main explanatory study.

4.6.2 Factor Analysis

As evident in existing literatures that factor analysis as a statistical modeling approach was first developed and used by an English psychologist called Charles Spearman in studying unobservable hypothetically existing variables (Raykov & Marcoulides, 2006). Like the path analysis, available literatures have shown that factor analysis also has relatively long history in business research (Hair et al., 2010; Hau and Marsh 2004). As argued in Raykov and Marcoulides (2006) that Spearman (1904) actually proposed the known individual's ability scores which are the manifestations of the general ability now called the general intelligence, and several other similar abilities such as the verbal or numerical abilities. These general and specific factors were both combined to produce the currently known ability performance. An idea that was later labeled the two-factor theory in human

abilities. Very important is that as more and more researchers became interested in this factor approach, the theory was later extended to accommodate many factors and its corresponding analytic approach resulted into what we now called “factor analysis”.

In general terms, the use of factor analysis could be referred to as a modeling approach that is used in studying hypothetical constructs through various indicators or observable proxies that can be measured directly (Byrne, 2010; Hair et al., 2010; Raykov & Marcoulides, 2006). Factor analysis is considered exploratory factor analysis (EFA), if the topic of interest is concerned with determining how many latent constructs or factors are needed to efficiently explain the relationships that exist among a set of observed measures (Hair et al., 2010; Hu and Bentler, 1995). Alternative to EFA is confirmatory factor analysis (CFA), this is where the preexisting structures of the relationships that exist among the measures are being quantified and tested. Unlike the EFA, CFA is primarily not concerned with researchers trying to discover a factor structure; rather researchers are more concerned with examining and confirming the available details of the assumed factor structures. Meanwhile, in order for researchers to confirm any specific factor structures, they need to have initial idea about the structure compositions.

Thus, CFA is generally considered to be a modeling approach that is designed to test any hypothesized relationships about a factor structures, more importantly

when these factor numbers and its interpretations in terms of indicators were given in advance of the analyses. Hence, this research has followed the three suggested stages in CFA (a) reviewing related theories first, (b) conceptualizing the hypothesized relationships into a model, and finally (c) testing the model for internal and external consistency with the observed explanatory data.

4.6.3 Structural Equation Modeling

As noted that Structural equation modeling (SEM) is widely used by many field of disciplines which marketing is not excluded, the researcher has analyzed this study with SEM. Existing literatures have established SEM as a powerful second generation multivariate technique that is good for analyzing results which may have many variables, by allowing the assessment of measurement properties and theoretical (structural) relationships with multiple relationships, simultaneously in the same analysis (Byrne, 2010; Hair et al., 2010; Hau and Marsh 2004). SEM is noted to have the capacity of using a combination of multiple regressions, factor analysis and path analysis techniques for a simultaneous estimate of measurement, and establish the relationships between a number of theoretically related constructs, called “latent variables” (Byrne, 2010; Hair et al., 2010).

4.7 Chapter Summary

This chapter has critically discussed the research method that was employed in collecting data for this study. This research is primarily divided into two separate phases. The first stage is the qualitative phase in the research that made use of a multiple case study design method so as to better understand the impacts of CRM applications in contact center industry. The results as obtained from the literature reviews and suggestions from the selected call center executives were used in finalizing the hypothesized conceptual framework and in specifying the research design and related measurement instruments. For all the CRM dimensions and perceived service quality, existing measurements scales were used in measuring them. However since there is no agreed measures that exist for first call resolution and caller satisfactions' constructs, this study developed new scales as advised at the face validity and also consistent with some literatures and were tested specifically for this current study. The second stage is the explanatory phase that consisted of mail survey that were distributed and collected from 400 call centers in Malaysia and were subsequently used in validating and testing necessary hypotheses on the relationships between CRM and call center performance.

CHAPTER 5

5.0 Data Analysis and Findings

5.1 Introduction

The primary objective of this chapter is to present the contributions from the pilot study and detailed analysis of the outcome of the data that were collected at the quantitative explanatory stage via questionnaire designs. It specifically presents key results from the survey response analysis, respondents and their demographic profiles, data screening and preliminary analysis, measures of validity and reliability, path analysis and detailed results from the hypotheses testing.

5.2 Analysis of Survey Response

5.2.1 Response Rate

For compliance with data collection requirements, 400 questionnaires were distributed to contact center managers in Malaysia via mail and web survey. This type of data collection method is consistent with existing industry literatures such as Yim et al (2005). From this number, only 173 questionnaires were returned out of which 5 were discarded because they were incomplete. Thus, putting the total usable responses for further analysis at 168 and constituting an overall 43.3% response rate for this study.

The obtained sample size in this study appears to be very adequate and the response rate is also comparable to many contact center studies that have used managers and senior executives as the study sample. In those studies their respective response rates were between 15 and 49 percent (Yueh et al., 2010; Dean, 2009; Richard, 2007; Roland and Werner, 2005; Sin et al., 2005; Yim et al., 2005). Out of the 173 respondents, 103 answered through the mail questionnaire, while the remaining 70 responded through the Web. To avoid multiple responses from same company, the researcher did compare the respondents from the online and mail on key variables like their annual revenue, experience, number of employees etc. And the results show that those who respond to mail questionnaire are different to those that responded to the online questionnaire.

5.2.2 Test of Non-Response Bias

Evidence from existing literatures have established that the non-respondents sometimes differs systematically from the respondents both in attitudes, behaviors, personalities, motivations, demographics and/or psychographics, in which any or all of which might affect the results of the study (Malhotra, Hall, Shaw, & Oppenheim, 2006). In this study, non-response and the response bias has been tested using the t-tests to compare the similarities between the mean, standard deviation and standard error mean of the early and late responses in variables such as gender, industry, revenue, number of employees, experience, qualification and age. Researchers like Churchill and Brown (2004) and Malhortra

et al (2006) have empirical argued that late respondents could be used in place of non-respondents, primarily because they wouldn't have probably responded if not that they had been extensively given followed up approach.

Malhortra et al (2006) went further to argue that the non-respondents are assumed as having similar characteristics like the late respondents. To standardize this procedure, this study has divided the sample into two (namely: early responses – those that returned the questionnaires within two weeks after the distribution and late responses - those that returned the questionnaires after two weeks from the date of distribution. Based on the aforementioned facts, this study has classified 102 respondents as early responses and 66 respondents as late responses. Both descriptive test and Levene's test for equality of variance were conducted on the demographic and continuous variables. For the demographic variables, the researcher conducted descriptive test to compare the means, standard deviation and standard error mean between the early and late respondents.

The results of the descriptive test indicated that there were no significant statistical differences in their demographic variables. Except for the early respondent that shows a higher qualification (Postgraduate vs. Undergraduate), an indication which shows that the executives who has higher education tend to value academic researches due to their experience in postgraduate studies. For the continuous variables, the results from Levene's test equality of variance indicated that there is no significance difference. Good example is the comparison

between the final constructs of the endogenous variables which reveals that there is no significance difference i.e. FCR ($t = - 2.111$, $p = 0.030$), PSQ ($t = 0.116$, $p = 0.032$), and caller satisfaction ($t = - 4.397$, $p = 0.000$). For detail verifications of the descriptive test, please refer to table 5.1 and appendix D for independent samples test on equality of variance and means.

Table 5.1: Test of Non-Respondent Bias

Variable	Response	Number of Cases	Mean	Standard Deviation	Std Error Mean
Gender	Early	102	1.41	.495	.049
	Late	66	1.42	.498	.061
Industry	Early	102	2.52	.728	.072
	Late	66	2.45	.706	.087
Revenue	Early	102	2.51	.841	.083
	Late	66	2.50	.685	.084
No of Employee	Early	102	2.42	.710	.070
	Late	66	2.64	.515	.063
Experience	Early	102	2.17	.902	.089
	Late	66	2.42	.658	.081
Qualification	Early	102	4.33	.871	.086
	Late	66	3.70	.744	.092
Age	Early	102	2.44	.815	.081
	Late	66	2.64	.648	.080
Position	Early	102	3.44	.654	.065
	Late	66	3.62	.739	.091

Sequel to the above, this study tends to conclude that there is non-response bias that could significantly affect the study's ability to generalize its findings. The above result has therefore given this study the opportunity to utilize the entire 168 responses in the data analysis.

5.3 Data Screening and Preliminary Analysis

5.3.1 Overview

To establish the assumption of psychometric properties before applying necessary data analysis techniques; this study employed a series of data screening approach among which includes; detection and treatment of missing data, outliers, normality, multicollinearity etc. This is because the data distribution and the selected sample size have a direct impact on whatever choice of data analysis techniques and tests that is chosen (Byrne, 2010).

5.3.2 Missing Data

Several studies have established that missing data is an issue of major concern to many researchers and has the capability of negatively affecting the results of any empirical research (Cavana et al., 2001). Ten returned mail surveys (10.3% of mailed surveys) had missing data, whereas there was no missing data in the online questionnaire. This is because the online questionnaire was structured in a way that the respondent will not be able to submit it if it has any missing data. The treatment of this missing data is very crucial because AMOS the statistical instrument for analyzing the data will not run if there is any missing value. Hair et al (2010) argued that it is better for researchers to delete the case respondent if the missing data is more than 50% and the study does not have any sample size problems. Alternative to this is the general treatment of missing data through

SPSS by replacing missing values with mean or median of nearby points or via linear interpolation.

For this research, the ten missing mailed questionnaires were replaced with the median of nearby values since they are all minor omissions. As observed in this study that the most common item of missing data was the demographic variables such as level of annual income or current number of employees. These items mainly referred to the size of the respondent's firm. Based on the need to protect their identity this research concluded that the missing data might be intentional simply for administrative purposes.

5.3.3 Checking for Outliers

Statistical evidence has established outliers as any observations which are numerically distant if compared to the rest of the dataset (Bryne, 2010). In line with this are several existing literatures that have been conducted on the different methods of detecting outliers within a given research, among which includes classifying data points based on an observed (Mahalanobis) distance from the research expected values (Hair et al., 2010; Hau & Marsh, 2004). Part of the constructive arguments in favor of outlier treatments based on Mahalanobis distance is that it serves as an effective means of detecting outliers through the settings of some predetermined threshold that will assist in defining whether a point could be categorized as outlier or not (Gerrit et al., 2002).

For this research, the table of chi-square statistics has been used as the threshold value to determine the empirical optimal values for the research. This decision is in line with the arguments of Hair et al (2010) which emphasized on the need to create a new variable in the SPSS excel to be called “response” numbering from the beginning to the end of all variables. The Mahalanobis can simply be achieved by running a simple linear regression through the selection of the newly created response number as the dependent variable and selecting all measurement items apart from the demographic variables as independent variables. Doing this has assisted this study in creating a new output called Mah2 upon which a comparism was made between the chi-square as stipulated in the table and the newly Mahalanobis output.

It was under this Mah2 that this current study identified 16 items out of the total of 168 respondents as falling under outliers because their Mah2 is greater than the threshold value as indicated in the table of chi-square statistics that is related to the 40 measurement items in the independent variable of this study and was subsequently deleted from the dataset. Sequel to the treatment of these outliers, the final regressions in this study was done using the remaining 152 samples in the data.

5.3.4 Assumptions Underlying Statistical Regressions

Many of the modern statistical tests have been relying upon some specified assumptions about the actual variable to be used in the data analysis. Arguably, researchers and statistician have confirmed on the need to meet these basic assumptions in order for the research results to be trustworthy (Leslie, 2010; Byrne, 2010; Hair et al., 2006). This is because a trustworthy result will prevent the occurrence of either Type I or Type II error, or even the error in over or under estimating the significance of a research. As noted by Hau and Marsh (2004) that the knowledge and general understanding of the previous and current situations on the theory will be jeopardize if there is violations of these basic assumptions that might lead to a serious biases in the research findings. The three notable of these basic assumptions are linearity, normality and homoscedasticity (Hair et al., 2010).

5.3.4.1 Assumption of Normality

For every regression analysis, researchers always assume that the variables are normally distributed. This is because a non-normally distributed variable will be highly skewed and could potentially distort the relationships between the variables of interest and the significance of the tests results (Hulland, 1999). To prevent the occurrence of this abnormality in this current study, the researcher has conducted necessary data cleansing such as determining the z-score of each items and transforming them through cdfnorm in SPSS 14. Sequel to the

transformation of data, this study has conducted visual inspections of the data through stem and leaf plots, normal Q-Q plot, boxplot to determine the data skewness and kurtosis so as to ascertain the normality of the data. For visual verifications of the aforementioned plots, please kindly refer to appendix C which detailed out the list of normality assessment and treatments.

Importantly, after this transformations both the critical ratios from the skewness and kurtosis in this study falls within the suggested standards of $CR < 2/3$ and $CR < 7$, a strong evidence that indicate the normality of the data. Similarly conducted in this study is Kolmogorov-Smirnov tests which have also provided evidence of the normality of the data that is used in this study. Very relevant on this area of research is the analyses conducted by Bryne (2010) which further confirmed that treatment of normality has done in this research are efficient means of reducing the probability of incurring either Type I or Type II errors and also improving the accuracy of the research estimates.

5.3.4.2 Assumptions of Linear Relationship

As argued that for any standard multiple regression analysis to be accurate in its estimates of the relationships that exist between the dependent and the independent variables the relationships must be linear in nature. This is because there are several instances in some social sciences researches where non linear relationships have occurred between the variables of study (Hau and Marsh, 2004). The occurrence of non linearity has been argued to increase the chances

of committing a Type I or Type II error. Several authors like Krejcie and Morgan (1970), Hanke and Reitsch (1992), and Nunnally and Bernstein (1994), have suggested three methods of detecting non-linearity, among which includes the use of items from existing theory or previous studies in the current analyses. For this current study there is linearity between the dependent and independent variables because all the items in the independent variables were adopted from existing theories that have tested the impact of CRM dimension on customer satisfaction (Sin et al., 2005; Yim et al., 2005), although these studies were not conducted within the inbound units of call centers. Therefore there is no problem of the non-linearity in this study.

5.3.4.3 Assumption of Homoscedasticity

The existence of Homoscedasticity in a research means that the variance of errors in such analysis is the same across all its levels in the independent variables (Hair et al., 2006). There is no Homoscedasticity in this current study as obtained in the estimates of its correlations among the exogenous variables. For detail information on the correlation results as obtained in the structural analysis, below is table 5.2 for your perusal. None of the independent variables have offending estimates, therefore confirming non existence of any distortions or probability of committing Type 1 error.

Table 5.2: Correlations between exogenous variables

			Standardized Estimate
CO	<-->	KM	.358
CRMO	<-->	TCRM	.625
TCRM	<-->	KM	.591
CRMO	<-->	KM	.757
CO	<-->	TCRM	.267
CO	<-->	CRMO	.445

Knowledge Management (KM), Technology based CRM (TCRM), CRM organization (CRMO), Customer Orientation (CO).

5.3.5 Sample Size and Power

Since there is little evidence on the statistical power and the factor loading to be selected in SEM and AMOS literatures, the criteria that was used in the analysis of this study was based on the recommended by Bryne (2010). This involves identifying the significant factor loadings to be use for a factor analysis through its sample size, and given the 400 cases in this study, a factor loading of 0.50 or greater has been considered to be significant as a criterion for the assessment of factor loadings.

5.3.6 Common Method Variance

Previous statistical literatures have established common method bias as a major source through which measurement errors can occur and could substantially have negative impact on the observed relationships that exist between the measured variables (Nunnally and Bernstein, 1994). A major cause of the common method

bias is items characteristics; which normally occurred through the use of same respondents for both the dependent and the independent variables (Hair et al., 2006). Strong argument in support of this type of bias is that it will generate significant artificial covariances. Hair et al. (2006) suggested that for researchers to prevent the error in common method bias, they need to separately measure the predictor and the criterion variables through different sources.

For this study, common method bias was prevented through measuring predictor variables based on managers opinion of the impacts of CRM dimensions on their operational activities, while the criterion variables was asked based on the outcome of their 2009 customer satisfaction and first call resolution survey. This procedure was made possible because within the contact center industry each company generally conduct customer survey either through interactive voice response (IVR), telephone, email or sms survey. A good reason upon which FCR and caller satisfaction where measured based on ordinal scale in this study, this is because it empirically aligned with some existing literatures and industry standard of measuring FCR and caller satisfaction based on percentage method (SQM, 2007; Roland and Werner, 2005; Yim et al., 2005; Feinberg et al., 2002; 2000).

5.4 Profiles of the Respondents

For ease of understanding is a tabulation of the profiles of the respondents, their firm's structure and the demographic information about the participants in table 5.3. A critical look at the table has indicated that the responding firms and its participants are broad representative of the target population in Malaysian contact center industry. This is because the results in table 5.3 are consistent with the industry reports which established that Malaysia contact center executives are male dominated (57.7%) as against the female that are 42.3% respondents (Frost and Sullivan, 2009). This figure is very common within the contact center industry where their working schedules might be sometimes inconvenient for the ladies (Roland and Werner, 2005).

Similarly the respondents' profile indicated that those organizations whose employees are below 100 are represented with 8.9% respondents, firms numbering between 101 and 500 are moderately represented with 33.9%, while those that are between 501 and above are over represented with 57.1%. The low respondent from some companies might be connected to their less involvement in CRM applications, meanwhile the larger firms are likely to be over represented simply because of their ability to financially acquire and utilize the costly CRM technologies, making them more willing to participate in the survey (Yim et al., 2005). It became very apparent right from the initial telephone contact that smaller contact center firms tended not to have implement CRM applications and

technologies and therefore confirming the reasons for their less willing to participate in the study survey. Whereas the larger companies tended to be very familiar with CRM applications and technologies, and therefore establishing the reasons for their more inclined to participating in the study, a strong evidence that has helped in explaining the over representations of Services (56%), Wholesale (31%), manufacturing (10.7%) and others (2.3%) as shown in table 5.3. As could be seen in the table below that majority of the respondents reported between 5 and 10 years (46.4%) of work experience, and had some tertiary educations.

Majority of the companies earned an annual revenue of between RM1million and above (89.9%), with few minority (10.1%) earning below RM1million. This findings is in line with the industry trend that the majority of contact center operators that are earning higher revenue have in one way or the other implemented CRM applications and technologies (Frost and Sullivan, 2009; Callcentre.net, 2008;2003). These higher amounts of earnings have indicated how busy the industry activities are, particularly in its recent development on the foreign direct investment (FDI) in the outsourced business unit (Frost and Sullivan, 2009). This was why it was very difficult to see leading contact center executives such as the Senior Vice President and the Vice President to respond to the survey, an issue that made the majority of the respondents to fall under key operating executives like the call center manager (58.3%) and the Operation Manager (30.4%).

Conclusively, the above discussions have indicated that the sample for this study has not deviate from the general population of contact center and therefore making the sample a perfect representative of the selected population of interest.

Table 5.3: Profiles of the Respondents

Variable	Category	Number of Cases	Percentage %
Gender	Male	97	57.7
	Female	71	42.3
Industry	Manufacturing	18	10.7
	Wholesale	52	31.0
	Services	94	56.0
	Others	4	2.3
Revenue	Between RM100, 000 – RM900, 000	17	10.1
		71	42.3
	Between RM1M – RM9, 900 000M	80	47.6
	RM10M and above		
No of Employees	Below 100	15	8.9
	101 – 500	57	33.9
	501 and Above	96	57.1
Years of Working Experience	Less than 5 years	30	17.9
	Between 5 and 10 years	78	46.4
	Between 10 and 20 years	49	29.2
	Above 20 years	11	6.5
Qualification	No certification held	-	-
	Primary school Certificate	11	6.5
	School Certificate/SPM	25	14.9
	Tertiary school certificate	71	42.3
	Postgraduate Degrees	61	36.3
Age	Between 18 and 35 years	94	55.9
	Between 36 and 45 years	60	35.7
	Between 46 and 55 years	10	6.0
	Over 55 years	4	2.4
Position	Senior Vice President	-	-
	Vice President	1	.6
	Call Center Manager	98	58.3
	Operation Manager	51	30.4
	Others	18	10.7

5.5 Measurement Refinement

Consistent with the available literatures on structural equation modeling and many scholarly recommendations, this study deem it fit to adopt a two step model building method as previously adopted by Roland and Werner, (2005) and Yim et al (2005) both conducted within the inbound units of the contact center industry. The first step involved the exploratory factor analysis (EFA) to purify and validate untested new measurement scales, and the second step which involved confirmatory factor analysis (CFA) meant to validate pre-existing measurement scales within the context of the current study (Bryne, 2010; Hair et al., 2006).

At the onset of this study, the researcher developed a set of ratio scales to measure the individual contact center performance in terms of their first call resolution and caller satisfaction. But the proposed ratio scale was turned down by the chosen managers at the face validity because it is a subject of privacy and confidentiality. These group of experts alternatively suggested that it is best to use the industry standard which might ask the managers to rate their company's performance based on their previous customer survey. Whereas, the managers' suggestion are theoretically in line with the previous studies such as Roland and Werner (2005), Yim et al (2005) and Feinberg et al (2002; 2000) that all asked managers to rate their company's performance based on the percentage of their callers surveyed that report top box first call resolution (FCR) and caller satisfaction. The "top box" FCR and caller satisfactions refers to the callers that

reported they were extremely satisfied with the outcomes of their calling, and this primarily depends on the whatever the company wants the top score to be measuring. This process as requested by the managers at the face validity stage and also in-line with major existing literatures that have measured first call resolution and caller satisfaction eventually narrowed the EFA process.

The purpose of the EFA was primarily to identify, reduce and assist in validating the underlying factors that might determine FCR and caller satisfaction, this study concomitantly abide by its identification of the single construct that is being used in the industry of study and previous studies like Feinberg et al (2002; 2000), Roland and Werner, (2005) and Yim et al (2005). As argued by Hair et al (2006) that the objective for conducting exploratory factor analysis is to generally prepare the data for any subsequent bivariate or multivariate regression analysis using the AMOS software. Contrary to EFA, the confirmatory factor analysis was used in this study to confirm and reduced the numbers of the factors from other constructs such as CRM dimensions (Customer Orientation, knowledge management, CRM Organization, and Technology Based CRM) and perceived service quality. Following the suggestions in the existing literatures on SEM, this study made used of SPSS 14.0 software in performing the EFA, while AMOS software was also used in conducting the CFA (Bryne, 2010; Hair et al., 2006).

5.5.1 Factor Analysis

Exploratory factor analysis (EFA) is primarily designed to explore the data set that is to be used in a research from existing theoretical view, mainly by allowing such data to statistically load on factors that are independent of theory and any *a priori* assumptions that are related to the measurement instruments (Hair et al., 2006; Cavana et al., 2001).

This study conducted a detail visual inspections on the likely correlation matrix primarily to establish factorability and ensure that a substantial numbers of the correlations are greater than 0.50. To effectively do this, a scan was done on the significance values primarily to look for any likely variable that its majority of values are greater than the suggested 0.50. Following this was a scan on the correlation coefficients looking for any that might be greater than the suggested 0.9. Important to note under this is that if majority of the variables have a value that is greater than 0.5 or the correlation coefficient has a value greater than 0.9, then the researcher should be aware that there is the probability of problems arising from singularity in its data (Nunnally and Bernstein, 1994).

Hair et al (2006) suggested that researchers should eliminate one of the two variables that are causing the problem through checking of their determinants. To identify their determinants, one will need to check on the list at the bottom of the matrix. For the data that is used in this current study its value is 6.55E-019

(which is 0.066) a value that is far greater than the suggested value of 0.00001. Therefore, indicating that there is no multicollinearity problem in these data. In summary, all the questions in the CRM dimensions correlate very well and none of the coefficient of their correlation is particularly large; indicating that there is no need for eliminating any of the measurements at this stage.

5.5.2 KMO and Bartlett's Test

This is the second output under SPSS that specifically measured Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity. The KMO statistic has been theoretically argued as varying between 0 and 1 (Pinsonneault and Kraemer, 1993). This is because value of 0 generally indicated that the total of the partial correlations is observed to be large relative to the total of the correlations, an indication of the existence of diffusion within the patterns of the correlations (hence, conducting factor analysis is most likely to show an inappropriate result). Meanwhile if there is a value that is close to 1, that is an indication that the patterns of the correlations is observed to be relatively compact, therefore factor analysis is expected to yield a distinct and set of reliable factors (Hair et al., 2006; Pinsonneault and Kraemer, 1993).

As empirically recommended by Kaiser (1974) that it is generally acceptable to accept any value that is more than 0.5, importantly the implications is that any value that falls below 0.5 is an indication to collect more data or/and include new

variables. For Kaiser (1974), any value that falls between 0.5 and 0.7 could be referred as mediocre, while the values that are between 0.7 and 0.8 could be categorized as good, for the ones between 0.8 and 0.9 could be seen as great, and finally those values that are above 0.9 could be categorized as superb. For the data in this current study the value is 0.82, which empirically falls within the category of data that are classified as great; conclusively we are confident that the conducted factor analysis is very appropriate for our data.

The importance of the findings is that Bartlett's test is empirically structured to test the null hypothesis so as to determine if the original correlation matrix is truly identity matrices. Arguably it is said that for any factor analysis to efficiently work, the researchers need to establish some existing relationships between the variables of interest. And for any Bartlett test to be significant it must obtain a statistical significance value that is less than the suggested 0.05 (Bartlett et al., 2001). For this current study, the significant test has indicated to us that the observed R-matrix in this study is not an identity matrix, thereby confirming that there exist some relationships between those variables (customer orientation, knowledge management, CRM organization, technology based CRM, perceived service quality, first call resolution and caller satisfaction) that have been included in this study for further analysis. Importantly the Bartlett's test for the data in this study is highly significant at ($p < 0.001$), this outcome has statistically confirmed that factor analysis is very appropriate in this study.

5.5.3 Factor Extraction

Through factor analysis, this study was able to retrieve a list of eigenvalues that are associated with each of the linear components factors before and after the data extraction, and after the component is rotated. As indicated in appendix F, the eigenvalues which are associated with each of the factors mainly represents the actual variance that is explained by their linear relationship. It equally displays a set of eigenvalues which explains the percentage of the variances that is explained by each factor in the data set. Good example is factor 1 that explains 32.218% of the total variance in the dataset that was used for analyses in this study. It is worth mentioning here that those first few factors are the main factors that explains relatively the large amounts of those variances that is captured in the study, with more emphasis on the first 10 factors. All other factors subsequently explain very small and insignificant amounts of the variances.

5.5.4 CRM Dimensions - EFA

A detail review of available literatures theoretically indicates that this is the first empirical study that is making use of complete CRM dimensions in measuring caller satisfactions within the contact center industry. This research observed that available literatures on CRM dimensions, especially those conducted within the call center industry were studied outside Malaysia. In order to establish reliability and validity of the dataset, the researcher used EFA and reliability analysis to assess those items that are measuring CRM dimensions within the inbound units.

Below is table 5.4 which contain a detail list of all the items that are used in measuring CRM dimension in the research framework. A vivid inspections of the correlation matrix of CRM dimensions has indicated that (a) the correlations of all the items exceeded 0.40, (b) Kaiser Meyer Olkin Measure of Sampling Adequacy (MSA) = 0.829 was very adequate, (c) Bartlett test of sphericity was very significant at ($\chi^2 = 4,635.079$, with a $p < .000$), all these have statistically confirmed that factor analysis was very appropriate for this study. Below is table 5.4 that summarized the complete list of measurement items for each constructs in the CRM dimensions.

Table 5.4: Initial CRM Conceptual Measurement Items and Constructs

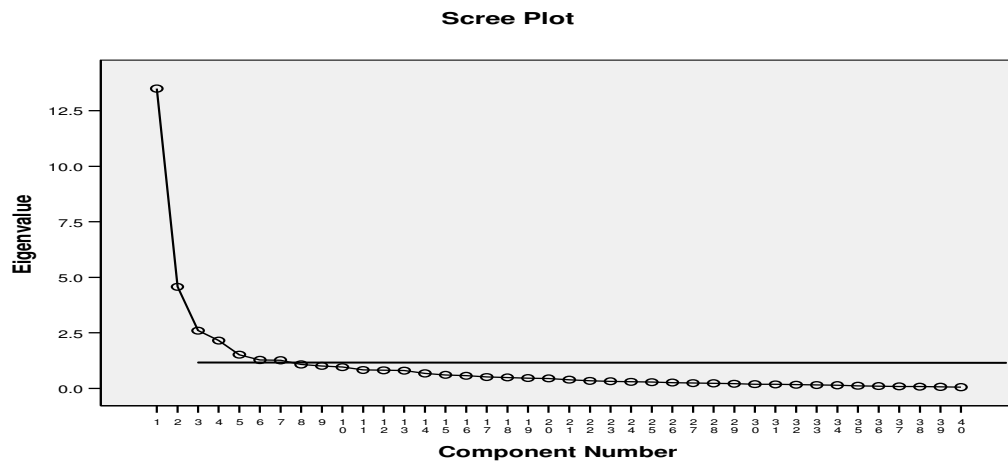
Constructs	Items	Code
Customer Orientation	<i>Customer is the center of strategic planning in the firm</i>	CO1
	<i>"The company is committed to meeting customer's needs and expectations "</i>	CO2
	<i>"There is an established framework for getting customers feedback"</i>	CO3
	<i>"Different processes for tracking customer's expectation are implemented"</i>	CO4
	<i>"Customer database are frequently updated"</i>	CO5
	<i>"There is strong Management support and commitment in using customer Knowledge in decision making process"</i>	CO6
	<i>"There is frequent dissemination of customer information throughout the firm"</i>	CO7
	<i>"All service standards are based on consistent analysis of customers' needs"</i>	CO8
	<i>"Our organization's competitive advantages are continually based on our ability to building and maintain positive long-term relationships with our customers"</i>	CO9
	<i>"Our organization has been making necessary efforts to find out the needs of our customers"</i>	CO10
CRM Organization	<i>"Our established and monitored customer centric performance standards at all customer touch-points"</i>	CRMO1
	<i>"Our organization has resources and marketing expertise to succeed in CRM"</i>	CRMO2
	<i>"Employee training programs in our company are designed for developing the skills that are required for deepening and acquiring customer relationships."</i>	CRMO3
	<i>"Clear business objectives have been established by our organization on how to acquire, develop, retain, and reactivate customers".</i>	CRMO4
	<i>"To successfully mange customer relationships, our organization have been committing time and resources".</i>	CRMO5
	<i>"Employee performance is measured and rewarded based on meeting customer needs and on successfully serving the customer".</i>	CRMO6
	<i>"Our organizational structure is meticulously designed around our customers"</i>	CRMO7
	<i>"All employees in my organization understand and share the common goal of building and maintaining customer relationships"</i>	CRMO8

	<i>"CRM responsibilities of each employee are clearly defined, assigned and understood"</i>	CRMO9
	<i>"Our top management team spends much time with key customers"</i>	CRMO10
Knowledge Management	<i>"My organization's employees are willing to help customers in a responsive manner".</i>	KM1
	<i>"Customer can expect exactly when services will be performed"</i>	KM2
	<i>"My organization fully understands the needs of our key customers via knowledge leaning".</i>	KM3
	<i>"My organization provides channels to enable ongoing, two-way communication with our key customers and us".</i>	KM4
	<i>"Customers can expect prompt service from employees of my organization".</i>	KM5
	<i>"My organization shares customer information across all points of contact"</i>	KM6
	<i>"New knowledge acquired at various touch-points of our organization is codified so that the new knowledge can be disseminated and shared easily amongst all staff"</i>	KM7
	<i>"My organization believes that mining data intelligently is a source of competitive advantage"</i>	KM8
	<i>"Knowledge is shared to leverage the value of customer information"</i>	KM9
	<i>"My organization has sound mechanisms for effective knowledge dissemination"</i>	KM10
Technology Based CRM	<i>"My organization has the right technical personnel to provide technical support for the utilization of computer technology in building customer relationships".</i>	TCRM1
	<i>"My organization has the right software to serve our customers".</i>	TCRM2
	<i>"My organization has the right hardware to serve our customers".</i>	TCRM3
	<i>"Individual customer information is available at every point of contact".</i>	TCRM4
	<i>"My organization maintains a comprehensive database of our customers".</i>	TCRM5
	<i>"Our computer technology can help create customized offerings to our customers"</i>	TCRM6
	<i>"Our information systems are designed to give comprehensive data about all aspects of our customers, so that we can be responsive to them"</i>	TCRM7
	<i>"IT facilitates the management of customer relationships"</i>	TCRM8
	<i>"My organization has the technical expertise and resources to succeed in CRM"</i>	TCRM9
	<i>"We have mechanisms to encode new knowledge about our customers into formal rules or policies that can be shared between organizational participants and organizational Subunits"</i>	TCRM10

A critical look at the unrestricted EFA showed that not all the communalities met the prescribed 0.50 loading as the cut off criterion, and there is little cross-loading that could have created difficulty in the interpretation. Also the scree plot revealed that two out of all the factors are the most likely factors that might be extracted (please see Figure 5.1 for a visual look of the scree plot). To adjust this observed lapses, those items that were loading below 0.50 were considered for deletion at the confirmatory factor analysis. Notably, this study will like to

emphasize that suggestions from existing literatures in structural equation modeling theoretically prescribe minimum of two (2) measurement items per construct (Byrne, 2010; Hair et al., 2006). And for this current study, the least construct has three measurement items in the final structural model. Below is figure 5.1 that depict the scree plot for CRM dimension measurement items:

Figure 5.1: CRM Dimensions scree plot



5.5.4.1 Final Results for CRM Dimensions - EFA

Although the factor loading, communalities, reliability test and the average variance extracted for the items in customer orientation and CRM organization are above the cut off criterion, the EFA results explicitly revealed that many of the items for these two constructs are cross loading. Notably, the researcher has intentionally allowed the necessary deletion to be done at the CFA stage because all the items were extracted from the existing literatures. Below are tables 5.5,

5.6, 5.7, and 5.8 that show the factor loading, communalities, cronbach alpha and the average variance extracted for all CRM dimensions:

Table 5.5: Factor Analysis Results for Customer Orientation

Code	Loading	Communality	Cronbach α	VE
CO1	0.845	0.784	0.866	0.971
CO2	0.694	0.798		
CO3	0.774	0.795		
CO4	0.692	0.825		
CO5	0.649	0.635		
CO6	0.778	0.685		
CO7	0.785	0.756		
CO8	0.701	0.737		
CO9	0.678	0.804		
CO10	0.714	0.757		

Note. VE = Variance Explained

Table 5.6: Factor Analysis Results for CRM Organization

Code	Loading	Communality	Cronbach α	VE
CRMO1	0.561	0.709	0.881	0.973
CRMO2	0.560	0.727		
CRMO3	0.518	0.706		
CRMO4	0.476	0.685		
CRMO5	0.540	0.755		
CRMO6	0.735	0.635		
CRMO7	0.710	0.772		
CRMO8	0.627	0.692		
CRMO9	0.658	0.647		
CRMO10	0.587	0.615		

Note. VE = Variance Explained

Table 5.7: Factor Analysis Results for Knowledge Management

Code	Loading	Communality	Cronbach α	VE
KM1	0.634	0.746	0.897	0.979
KM2	0.565	0.672		
KM3	0.656	0.751		
KM4	0.607	0.713		
KM5	0.648	0.709		
KM6	0.669	0.787		
KM7	0.617	0.594		
KM8	0.627	0.644		
KM9	0.511	0.714		
KM10	0.643	0.680		

Note. VE = Variance Explained

Table 5.8: Factor Analysis Results for Technology Based CRM

Code	Loading	Communality	Cronbach α	VE
TCRM1	0.656	0.636	0.936	0.990
TCRM2	0.694	0.783		
TCRM3	0.734	0.811		
TCRM4	0.780	0.732		
TCRM5	0.746	0.725		
TCRM6	0.763	0.743		
TCRM7	0.789	0.679		
TCRM8	0.840	0.773		
TCRM9	0.737	0.780		
TCRM10	0.743	0.773		

Note. VE = Variance Explained

The itemized results above indicated that all the four (4) constructs are measured by ten (10) items each, with loadings that are all above 0.50 cut off criterion as suggested by Hair et al (2006). A subsequent analysis through CFA indicated that the average variance extracted in the four (4) constructs ranges from 0.962 to 0.985, values that are all greater than the 0.50 cut off criterion as suggested by

Nunnally and Bernstein, (1994). Also tables 5.5, 5.6, 5.7, and 5.8 all shows that the communalities for all the items in customer orientation, knowledge management, CRM organization and technology based CRM were all greater than the minimum cut off criterion of 0.50 (Kaiser, 1974). The individual factor loadings were all above 0.50 except the fourth items in CRM organization that measures 0.476, meanwhile all the Cronbach's alphas are greater than the minimum of 0.70 cut off criterion that is specified for exploratory factor analysis (Hair et al., 2006; Nunnally and Bernstein, 1994). Sequel to these findings, all the four constructs and their related measurements instruments were further used in the multivariate analysis and the hypothesis testing using AMOS.

5.5.5 The Mediating Constructs: PSQ and FCR

Perceived service quality (PSQ) and first call resolution (FCR) are two different scales that were extracted to measure the relationships between CRM dimensions and caller satisfaction model within the inbound unit of call centers/contact centers. A critical look at chapter 3 has theoretically outlined the mediating role of perceived service quality as empirically argued and established by Dean (2007; 2004). Based on the existing literatures on PSQ, this study tried to avoid common method bias by conducting appropriate analysis through EFA to validate the applicability of the existing items on PSQ in Malaysian context. Whereas first call resolution is measured through an observed variable that is

based on the outcomes of company's 2009 first call resolution and caller satisfaction surveys.

Very important to note is that at the onset of this study, the researcher developed a set of ratio scales to measure the individual contact center performance in terms of their first call resolution and caller satisfaction. But the proposed ratio scales were turned down by the chosen managers at the face validity as been a subject of privacy and confidentiality. These group of experts alternatively suggested that it is best to use the industry standard which might ask the managers to rate their company's performance based on their previous customer survey. Whereas, these managers' suggestion are theoretically in line with the previous studies such as Roland and Werner (2005), Yim et al (2005) and Feinberg et al (2002; 2000) that all asked managers to rate their company's performance based on the percentage of their callers surveyed that report top box first call resolution (FCR) and caller satisfaction.

The "top box" FCR and caller satisfactions refers to the callers that reported they were extremely satisfied with the outcomes of their calling, and this primarily depends on whatever rate that each company wants the top score to be measuring. Below is table 5.9 shows the list of measurement instruments that is used in measuring PSQ within the inbound call centers, with specific emphasis on Dean (2007; 2004).

Table 5.9: Initial Perceived Service Quality Conceptual Measurement Items and Constructs

Constructs	Items	Code
Perceived Service Quality	My organization makes sure that customers doesn't wait too long in a queue for service	PSQ1
	My organization customer service consultant are taking enough time to attend to customers and not rushing the customers	PSQ2
	My organization customer service consultant are assisting the customers to define their problem or question them more specifically	PSQ3
	My organization customer service consultant are being able to solve different problems	PSQ4
	My organization customer service consultant are explaining steps in the process to customers (or reasons for problems)	PSQ5
	My organization customer service consultant are treating the customers with empathy	PSQ6
	My organization customer service consultant are having the authority to solve customers' problem	PSQ7

After running EFA on the above 7 items, the results of the correlation matrix shows that (a) the correlations for PSQ items all exceeded 0.40, (b) Kaiser Meyer Olkin Measure of Sampling Adequacy (MSA) for PSQ = 0.867 a very adequate and even more higher value than CRM dimensions, (c) the Bartlett test of sphericity for PSQ was also very significant at ($\chi^2 = 489.141$, with a $p < .000$), all these figures confirms that factor analysis is very appropriate for PSQ in this study. Despite these figures, a deeper view of the unrestricted EFA shows that two items in the communalities are below 0.50 cut off criterion, specifically 0.481 (PSQ6) and 0.479 (PSQ2). But surprisingly the factor loadings of these two items are above the 0.50 cut off criterion at 0.659 (PSQ6) and 0.624 (PSQ2). The outcomes above made the deletion of these items difficult, further giving it the opportunity to be further validated at confirmatory factor analysis (CFA) stage. Equally checked for standardization is the scree plot, a result that revealed that

one out of all the 7 factors is most likely to be extracted (please see Figure 5.2 below for the diagrammatic view of PSQ scree plot), and table 5.10 for its factor loading, communalities, cronbach alpha and the variance extracted:

Figure 5.2: Perceived Service Quality scree plot

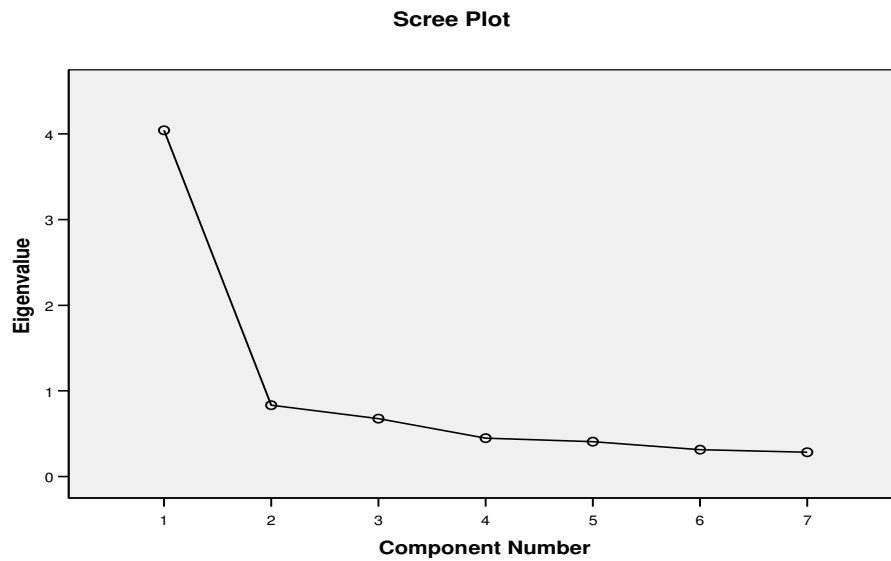


Table 5.10: Factor Analysis Results for Perceived Service Quality

Code	Loading	Communality	Cronbach α	VE
PSQ1	0.594	0.522	0.877	0.982
PSQ2	0.624	0.479		
PSQ3	0.716	0.657		
PSQ4	0.755	0.673		
PSQ5	0.752	0.655		
PSQ6	0.659	0.481		
PSQ7	0.709	0.569		

Note. VE = Variance Explained

Sequel to conducting exploratory factor analysis on PSQ items, the EFA results for the 7 items above revealed that all the loadings are above 0.50 cut off criterion as suggested by Hair et al (2006). Its CFA also shows that the variance extracted in PSQ is 0.982 and while its average variance extracted with all other constructs ranges from 0.967 to 0.986. These values are all greater than the 0.50 cut off criterion that is suggested by Nunnally and Bernstein, (1994). The Cronbach's alpha for PSQ is also greater than the minimum of 0.70 cut off criterion that is specified for exploratory factor analysis (Hair et al., 2006; Nunnally and Bernstein, 1994). Depending on the results above, this study concludes that all the PSQ measurements instruments that were conceptualized and empirically satisfied as good by Dean (2007) is also good and relevant for use in the multivariate analysis and the hypothesis testing of this current study.

5.6 Validity and Reliability of Measures

As evident in existing literatures, this study has made used of content reliability to determine if the hypothesized items are actually measuring their constructs or not (John and Reve, 1982; Gulliksen, 1936). To do this, the researcher conducted a critical assessment of all the items' reliability to primarily examine loadings or the correlations of their measures with the construct upon which they were hypothesized. Theoretically, a cronbach's alpha of a loading 0.70 has been suggested by Nunnally and Bernstein (1994) as the cut off criterion, however there are some other authors that have suggested a less conservative

benchmark of 0.60 (Hair et al., 2006). Their arguments are based on the fact that the internal consistency measures of a cronbach's alpha primarily represent the extents that the hypothesized items actually converge to measure the variable of interest. Below is Table 5.11 that list out the outcomes of the cronbach's alpha at the pilot study stage and the main study:

Table 5.11: Reliability Cronbach Alpha (Pilot & Actual Study)

Construct	Cronbach Alpha	
	Pilot Study n = 40	Real Study n = 400
1. Customer Orientation	0.792	0.866
2. CRM Organization	0.837	0.881
3. Knowledge Management	0.823	0.897
4. Technology Based CRM	0.899	0.936
5. Perceived Service Quality	0.832	0.877

As suggested by many authors that the reliability and internal consistency of an item can be judged by set of rule of thumb which includes: alpha level that is > 0.90 should be categorized as been excellent, while the one that is > 0.80 are good, > 0.70 should be acceptable, > 0.60 should be categorized as questionable, > 0.50 are poor for scientific research, < 0.50 are generally unacceptable for academic purposes (John and Reve, 1982). The results above have shown that the measurement items both at the pilot and main study are all good, with even better results in the main study.

Part of the existing literatures in support of this results is that a well structured items that are measuring any single construct would statistically exhibit a higher and better Cronbach's alpha results, while those items that have low internal

consistency measures of less than 0.60 in a construct might theoretically indicates a poor definition of the construct (Hair et al., 2006). In this research convergent validity has been measured through the factor loadings, below is table 5.12 that aptly depicts the loadings of each items for measuring predictor variables that was based on managers opinion of the impacts of customer orientation, knowledge management, CRM organization and technology based CRM and perceived service quality as it affects their operational activities, while the criterion variables was asked based on the outcome of their 2009 customer satisfaction and first call resolution survey.

Many authors have statistically recommended a loading that is above 0.50 as the cut off criterion (Byrne, 2010; Hair et al., 2006; John, G., and Reve, 1982), meanwhile there are some other authors that believe that any item that is above 0.40 should be given a trial as long as they have been theoretically tested as a valid instrument for measuring the constructs of interest (Hu and Bentler, 1995; Kaiser, 1974). A critical view of the results in table 5.10 has shown that the larger percentage of the items is above the 0.50 cut off criterion, with majority being above 0.60. This shows that the hypothesized items are truly having a strong relationship with the conceptualized model (Hair et al., 2006).

Meanwhile, to satisfy the basic requirements that is guiding discriminant validity, the AVE of any two constructs that is measured must be greater than the square of correlations that exist between these constructs (Fornell and Larcker, 1981). The formula for calculating the variance extracted is as thus:

Variance extracted (VE) = $\sum (\text{standardized SMC}^2)$

$$\frac{\sum (\text{standardized SMC}^2)}{\sum (\text{standardized SMC}^2) + \sum \epsilon_j}$$

Where SMC = squared multiple correlation

\sum = Summation, ϵ_j = standardized error

Table 5.12 summarized the calculations of the variance extracted (VE) through the square multiple correlation (SMC) and standard error (SE):

Table 5.12: Variance Extracted

Variable	Code	Square Multiple Correlation (SMC)	SMC2	Standardized Error (SE)	Variance Extracted (VE)
Customer Orientation	CO1	0.070	0.0049	0.009	
	CO2	0.206	0.042436	0.007	
	CO3	0.287	0.082369	0.007	
	CO4	0.348	0.121104	0.006	
	CO5	0.448	0.200704	0.005	
	CO6	0.446	0.198916	0.006	
	CO7	0.500	0.25	0.006	
	CO8	0.635	0.403225	0.004	
	CO9	0.635	0.403225	0.004	
	CO10	0.524	0.274576	0.005	
			1.981455	0.059	0.971
CRM Organization	CRMO1	0.283	0.080089	0.006	
	CRMO2	0.444	0.197136	0.006	
	CRMO3	0.420	0.1764	0.005	
	CRMO4	0.540	0.2916	0.004	
	CRMO5	0.505	0.255025	0.005	
	CRMO6	0.343	0.117649	0.005	
	CRMO7	0.551	0.303601	0.005	
	CRMO8	0.480	0.2304	0.006	
	CRMO9	0.357	0.127449	0.006	
	CRMO10	0.392	0.153664	0.005	
			1.933013	0.053	0.973
Knowledge Management	KM1	0.405	0.164025	0.006	
	KM2	0.577	0.332929	0.005	
	KM3	0.664	0.440896	0.006	
	KM4	0.486	0.236196	0.005	
	KM5	0.494	0.244036	0.005	
	KM6	0.448	0.200704	0.004	
	KM7	0.268	0.071824	0.004	
	KM8	0.521	0.271441	0.004	
	KM9	0.333	0.110889	0.006	

	KM10	0.469	0.219961	0.005	
			2.292901	0.05	0.979
Technology Based CRM	TCRM1	0.532	0.283024	0.004	
	TCRM2	0.590	0.3481	0.003	
	TCRM3	0.610	0.3721	0.004	
	TCRM4	0.627	0.393129	0.004	
	TCRM5	0.592	0.350464	0.004	
	TCRM6	0.646	0.417316	0.003	
	TCRM7	0.586	0.343396	0.004	
	TCRM8	0.660	0.4356	0.003	
	TCRM9	0.548	0.300304	0.004	
	TCRM10	0.560	0.3136	0.004	
			3.557033	0.037	0.990
First Call Resolution	FCR	0.344	0.118336	0.006	
			0.118336	0.006	0.952
Perceived Service Quality	PSQ1	0.450	0.2025	0.005	
	PSQ2	0.409	0.167281	0.005	
	PSQ3	0.611	0.373321	0.004	
	PSQ4	0.627	0.393129	0.004	
	PSQ5	0.644	0.414736	0.006	
	PSQ6	0.396	0.156816	0.005	
	PSQ7	0.435	0.189225	0.005	
			1.897008		0.982
Caller Satisfaction	CS1	0.098	0.009604	0.006	
			0.009604	0.006	0.615

As indicated in table 5.12 above, the values of the variance extracted are shown in the last column of the table and it represents the amount of variances that each constructs can explain in the research framework. For this current study, these values ranges from 0.615 to 0.990 as calculated through the squared multiple correlations (SMC) and the standard error of variance (SE). This results in table 5.12 shows that the variance extracted for all the 7 constructs were greater than 0.5 as suggested by Hair et al (2010). The values for SMC and SE were all extracted from the AMOS 16 outputs.

5.6.1 Discriminant Validity

Discriminant validity can be defined as the degree to which a construct can be established as truly being difference from other constructs in the model (Byrne, 2010). A detailed review of the extant literatures as shown that there are two main methods through which researchers can statistically measure the discriminant validity of their data set, i.e. AVE (as suggested by Fornell and Larcker, 1981) and comparing chi-square of a model through its nested model (Hair et al., 2006). To assess discriminant validity of the data set, this study made used of the average variance extracted (AVE) procedures as described by Fornell and Larcker (1981). In that study they suggested that the squared multiple correlations between any two or more constructs as calculated in each items that measures it should be less than the calculated average variance extracted (AVE) that is measuring the item (John and Reve, 1982).

Very important reason that made this study to use the AVE is that it is the average variance that is shared between any construct and what it actually measure. And this measure have been argued as a must to be greater than the actual variance that it is shared between this construct and remaining constructs in the hypothesized model (Hulland, 1999). Below is table 5.13 that summarized the average variance extracted (AVE) which is the variance of the indicators that is explained by each factors in the model:

Table 5.13: Discriminant Validity – AVE

Variable Name	1	2	3	4	5	6	7
Customer Orientation (1)	1.000						
CRM Organization (2)	0.972	1.000					
Knowledge Management (3)	0.975	0.976	1.000				
Technology Based CRM (4)	0.981	0.982	0.985	1.000			
First Call Resolution (5)	0.962	0.963	0.966	0.971	1.000		
Perceived Service Quality (6)	0.977	0.978	0.981	0.986	0.967	1.000	
Caller Satisfaction (7)	0.793	0.794	0.797	0.803	0.784	0.799	1.000

As suggested by Byrne (2010), that an AVE that is above 0.50 should be treated as an indication of discriminant validity and that it shows that the validity of each construct and variables in the model is high. Notably, the average variance extracted in most existing literatures usually varies from 0 to 1 and normally represents the output of the ratio as obtained from the total variance that are due to each latent variables as shown in table 4 above. For this study, the results in table 5.13 indicated that the ratio for all the latent variables were all above the suggested 0.50, generally ranging from 0.784 to 0.986. This result statistically confirmed that the validity of customer orientation, knowledge management, CRM organization, technology based CRM, perceived service quality, first call resolution and caller satisfaction were all high.

5.6.2 Convergent Validity

As suggested by Fornell and Larcker (1981) and Hair et al (2006) this study has assessed convergent validity with the use of Cronbach's alpha for each constructs and their composite reliability score. As argued by Hair et al (2006) that 0.70 is a good benchmark for accepting the Cronbach's alpha and composite reliability of a constructs.

Below is table 5.14 and 5.15 that shows the calculation of the composite reliability and the descriptive statistics of indicators and their reliability results for all the constructs.

To calculate composite reliability for the study, below is the formula as suggested by previous researchers (Fornell and Larcker, 1981; Hair et al., 2006).

$$\text{Composite Reliability (CR)} = \frac{\sum (\text{Factor Loading}^2)}{\sum (\text{Factor Loading}^2) + \sum \epsilon_j}$$

Where CR = Composite Reliability

\sum = Summation, ϵ_j = standardized error

As indicated in table 5.14 below, all the constructs generally exhibited acceptable level of composite reliability with values that are greater than the suggested 0.70. These results further confirm the fitness of the data for the intended measurements in this study.

Table 5.14: Composite Reliability

Variable	Code	Factor Loading	Factor Loading ²	Standardized Error (SE)	Composite Reliability
Customer Orientation (CO)	CO1	0.475	0.225625	0.0234	
	CO2	0.530	0.2809	0.02169	
	CO3	0.627	0.393129	0.02292	
	CO4	0.639	0.408321	0.02256	
	CO5	0.669	0.447561	0.02214	
	CO6	0.717	0.514089	0.02257	
	CO7	0.725	0.525625	0.02395	
	CO8	0.778	0.605284	0.02118	
	CO9	0.774	0.599076	0.02132	
	CO10	0.716	0.512656	0.0219	
			4.512266	0.22363	0.953
CRM Organization (CRMO)	CRMO1	0.505	0.255025	0.0238	
	CRMO2	0.561	0.314721	0.02302	
	CRMO3	0.540	0.2916	0.02271	
	CRMO4	0.544	0.295936	0.02212	
	CRMO5	0.466	0.217156	0.02231	
	CRMO6	0.616	0.379456	0.02078	
	CRMO7	0.481	0.231361	0.02179	
	CRMO8	0.583	0.339889	0.02238	
	CRMO9	0.603	0.363609	0.02246	
	CRMO10	0.556	0.309136	0.02276	
			2.997889	0.22413	0.930
Knowledge Management (KM)	KM1	0.652	0.425104	0.02301	
	KM2	0.684	0.467856	0.02146	
	KM3	0.716	0.512656	0.02261	
	KM4	0.732	0.535824	0.02087	
	KM5	0.671	0.450241	0.02163	
	KM6	0.655	0.429025	0.02155	
	KM7	0.531	0.281961	0.02197	
	KM8	0.586	0.343396	0.02232	
	KM9	0.424	0.179776	0.0227	
	KM10	0.440	0.1936	0.02193	
			3.819439	0.22005	0.946
Technology Based CRM (TCRM)	TCRM1	0.652	0.425104	0.02129	
	TCRM2	0.615	0.378225	0.02101	
	TCRM3	0.752	0.565504	0.02254	
	TCRM4	0.749	0.561001	0.0224	
	TCRM5	0.781	0.609961	0.02232	
	TCRM6	0.699	0.488601	0.0205	
	TCRM7	0.727	0.528529	0.022	
	TCRM8	0.742	0.550564	0.0219	
	TCRM9	0.570	0.3249	0.02208	
	TCRM10	0.620	0.3844	0.02142	
			4.816789	0.21746	0.957
Perceived Service	PSQ1	0.594	0.352836	0.02282	

Quality (PSQ)					
	PSQ2	0.624	0.389376	0.02133	
	PSQ3	0.716	0.512656	0.02358	
	PSQ4	0.755	0.570025	0.02243	
	PSQ5	0.752	0.565504	0.02215	
	PSQ6	0.659	0.434281	0.02278	
	PSQ7	0.709	0.502681	0.02097	
			3.327359	0.15606	0.955

Table 5.15: Descriptive Statistics of Indicators and Reliability

Variable Name	No of Items	Mean (Std Deviation)	Cronbach Alpha	Composite Reliability
Customer Orientation	10	.5305 (.18506)	.866	0.957
CRM Organization	10	.5220 (.19202)	.881	0.973
Knowledge Management	10	.5077 (.19516)	.897	0.971
Technology Based CRM	10	.5235 (.21358)	.936	0.964
Perceived Service Quality	7	.5121 (.20851)	.877	0.962
Total Items	47			

5.7 Correlation Analysis

To establish accuracy in the research interpretations, below is table 5.16 that aptly depicts the results of pearson correlation coefficients that was conducted so as to be able to have detail understanding of the relationships that exist between the lists of variables in this study. As shown in table 5.16, the values of overall correlation in all the variables are positives, meanwhile majority of the variables have correlations coefficients values that are statistically significant at $p < 0.01$. Among the variables that were first analyzed are the CRM dimensions such as customer orientation, knowledge management, CRM organization and technology based CRM. The performance variables such as first call resolution,

perceived service quality and caller satisfaction were later examined. The results from the correlations of CRM dimensions indicated the four (4) variables were significantly correlated.

Very important to note is that the correlations that exist between the measures of call center performance, namely first call resolution, caller satisfactions and other subjective performance ratings that has been captured under perceive service quality are significantly correlated. Significant outcome show that only annual income and sales target achievement is significantly correlated. However, for first call resolution the associations are strong with CRM dimensions and perceive service quality (ranging from $r = .26$ to $r = .66$). Call center performance metrics such as caller satisfaction is positively related to all constructs in the model, but these associations are weak ($r = .06$). In practical term, this results shows that the implementation of CRM applications does influence the level of first call resolution that is attained but that does not necessarily mean that callers would be satisfied with the company's goods or services.

Lastly, the results from the pearson correlation analysis as shown below generally validate the preposition of the researcher that there exist positive relationships CRM dimensions, first cal resolution, perceived service quality and caller satisfaction. Although the joint impact of this relationship may be weak on caller satisfaction as indicated below, to further ascertain the validity of the results in pearson correlation, table 5.17 also depict the correlation matrix as

extracted from AMOS 16 in the structural analysis of the relationship between the constructs in the hypothesized model:

Table 5.16: Pearson Correlation Analysis

		MC0	MCRM O	MKM	MTCRM	MFCR	MPSQ	MCS
MC0	Pearson Correlation	1.0						
	Sig. (2-tailed)							
	N	152						
MCRM O	Pearson Correlation	.498(**)	1.0					
	Sig. (2-tailed)	.000						
	N	152	152					
MKM	Pearson Correlation	.271(**)	.638(**)	1.0				
	Sig. (2-tailed)	.001	.000					
	N	152	152	152				
MTCRM	Pearson Correlation	.248(**)	.568(**)	.667(**)	1.0			
	Sig. (2-tailed)	.002	.000	.000				
	N	152	152	152	152			
MFCR	Pearson Correlation	.263(**)	.579(**)	.664(**)	.502(**)	1.0		
	Sig. (2-tailed)	.001	.000	.000	.000			
	N	152	152	152	152	152		
MPSQ	Pearson Correlation	.141	.384(**)	.511(**)	.629(**)	.446(**)	1.0	
	Sig. (2-tailed)	.083	.000	.000	.000	.000		
	N	152	152	152	152	152	152	
MCS	Pearson Correlation	.062	.124	.137	.109	.159	.239(**)	1.0
	Sig. (2-tailed)	.446	.128	.093	.183	.050	.003	
	N	152	152	152	152	152	152	152

Note: ** Correlation is significant at the **p<0.01 level

Table 5.17: Correlation Matrix from AMOS

	TCRM	KM	CRMO	CO	FCR	PSQ	CS
TCRM	1.000						
KM	.610	1.000					
CRMO	.624	.764	1.000				
CO	.265	.416	.439	1.000			
FCR	.322	.533	.403	.133	1.000		
PSQ	.630	.589	.364	.297	.303	1.000	
CS	.187	.124	-.018	.069	.230	.136	1.000

Knowledge Management (KM), Technology based CRM (TCRM), CRM organization (CRMO), Customer Orientation (CO).

5.8 Confirmatory Factor Analysis (CFA) and the Measurement Model

Structural Equation Modeling is a technique that allows software such as AMOS to be used for testing CFA and establishing a measurement model that is correctly specified before going into the real evaluations of the structural model (theoretical linkages), which will assist in validating the hypothesized model (Byrne, 2010; Hair et al., 2006). Below is figure 5.3 that aptly depicts the hypothesized measurement model with all its related items for measuring each of the CRM dimension constructs, mediating constructs and the dependent variable.

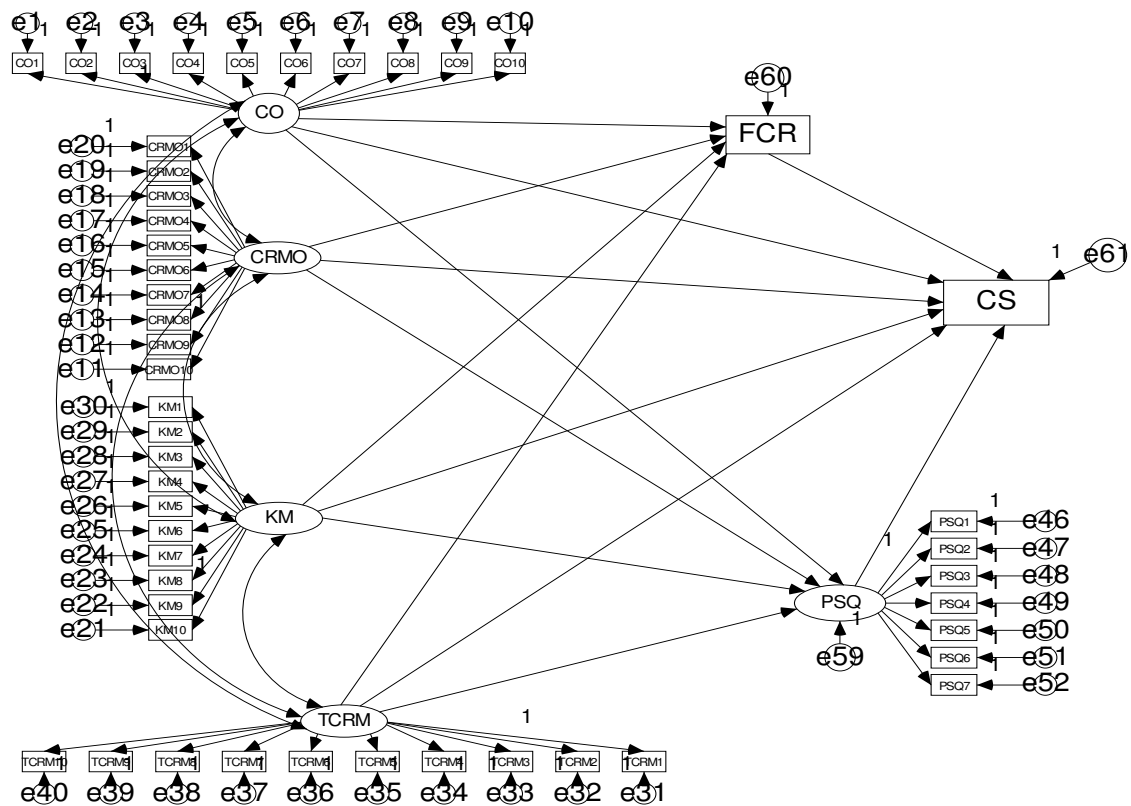


Figure 5.3: Hypothesized measurement model that is used for confirmatory factor analysis

In order for this study to establish the validity and reliability of the hypothesized measurement model, each constructs and their measurement items were thoroughly examined with the use of AMOS 16. Item reliability of each constructs was evaluated by evaluating item loadings in AMOS from their outer measurements model. As argued by Byrne (2010) that each item loadings actually represents the correlation coefficients that exists between the constructs' indicators and their latent variables. To establish accuracy and effective comparison between each items' relative strengths, this study has conducted CFA on the hypothesized endogenous measurement model (Byrne, 2010; Hair et al., 2010). Below is figure 5.4 that presents the results of the CFA endogenous measurement model:

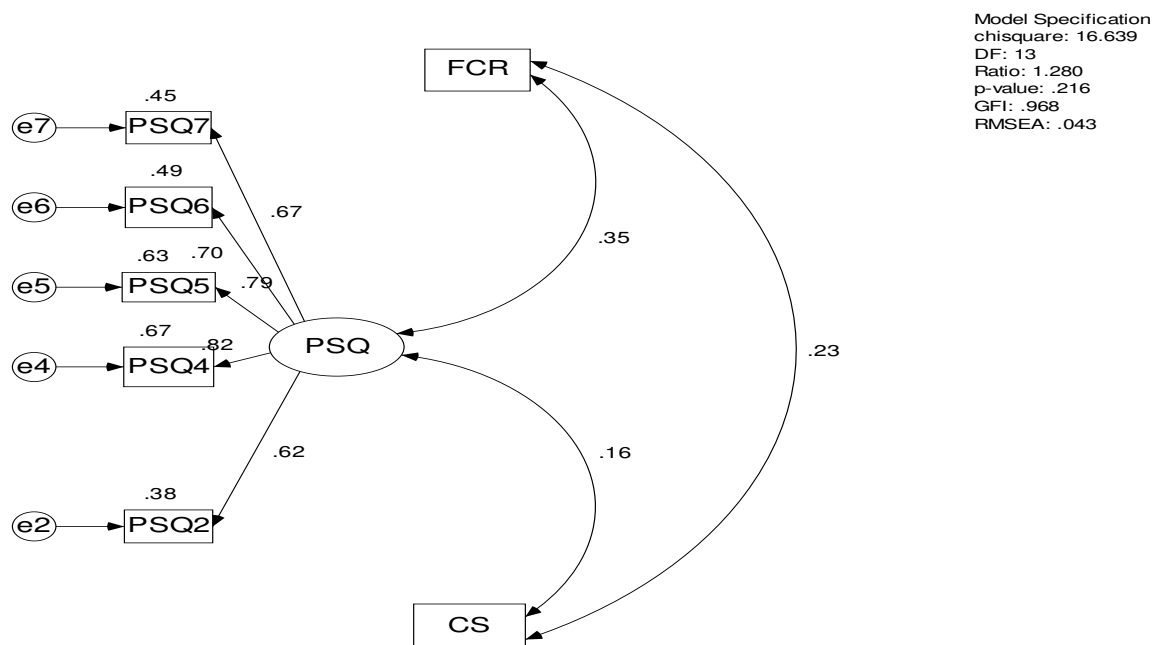


Figure 5.4: CFA measurement model for Endogenous variables

As observed in figure 5.4, this study has compared the individual constructs in the endogenous model for their loadings and modification index primarily to determine the strengths of their measurements items as conceptualized in the research model. Very important to note is that there is no rule of thumb on what best loadings to accept (Byrne, 2010), but Hair et al (2006) suggested that researchers should evaluate the covariance of the items by looking for the items that their standard errors have high modification indices for possible removal. For this endogenous model, the basic fit indexes were achieved after the deletions of two items measuring perceive service quality i.e. (PSQ1 and PSQ3). What this thus indicates is that the remaining items are reliable for the achievement of the suggested cut off criterion in the fit index as hypothesized in CRM impact on call center performance relationships in the final structural model.

It should be emphasized that this study also conducted CFA on the exogenous measurement model in order to determine the reliability of the items measuring each of the CRM dimensions. To do this, all the items that are measuring CRM constructs were combined into single composite indicator as suggested by Hair et al (2010). Out of 40 items that were conceptualized in this study as probable measurement of CRM dimensions within the contact center industry, only 13 items were statistically reliable for the final structural model (Byrne, 2010; Hair et al., 2010). For further verifications of the CFA measurement model in CRM dimensions, below is figure 5.5 that demonstrate strong item loadings with the achieved fit index:

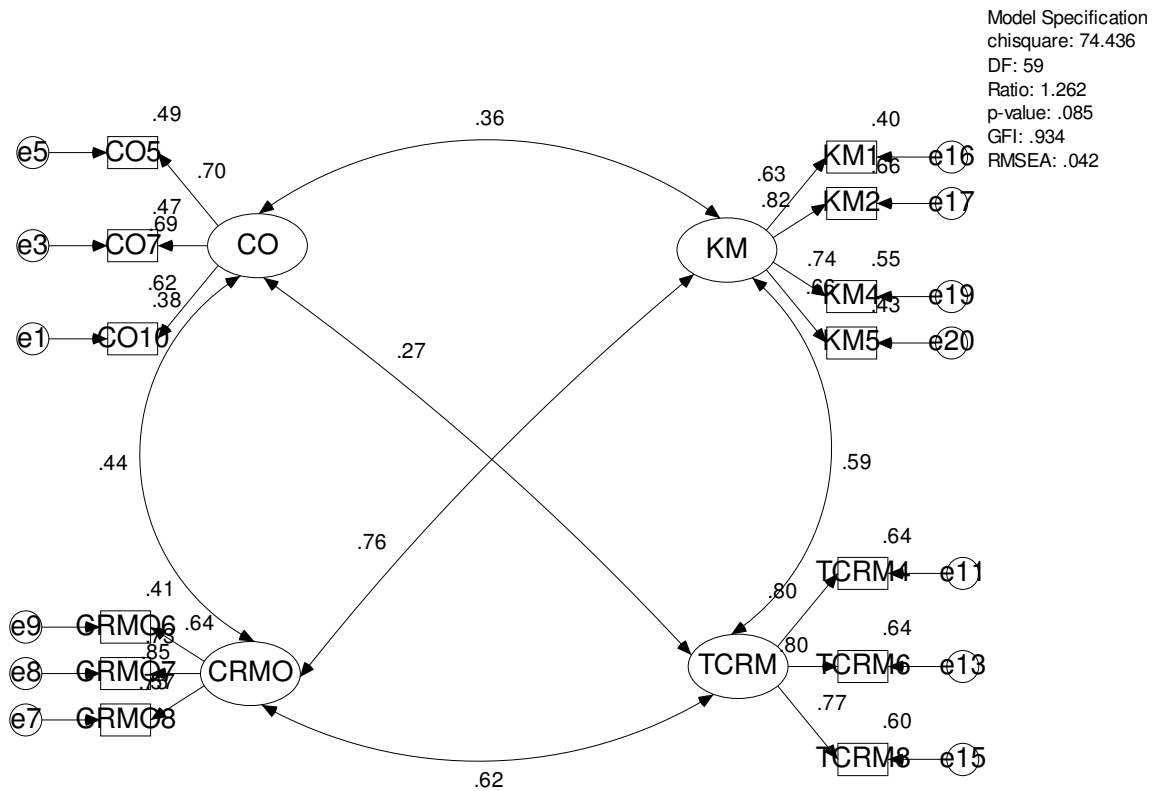


Figure 5.5: CFA measurement model for Exogenous variables

Items deletions were adequately guided through appropriate suggestions on their loadings and modification index (Hair et al., 2006). It is good to mention that modification index for any parameter is the estimate of the actual amount by which a model's discrepancy functions will be decreased in the event that this analysis is repeated with those same constraints on the parameter that is removed (Hair et al., 2006). As observed in figure 5.4 and 5.5, some measurement items were deleted due to either high modification index of their covariance or their loadings are less than the suggested 0.60 cut off criterion (Byrne, 2010; Hair et al., 2006).

Notably, all the four CRM dimensions were finally left with 3 measurement items each, including perceive service quality. Please refer to appendix G for

verification of the modification index for each items as calculated in AMOS software.

5.9 Final Model Constructions and Evaluations

5.9.1 Final Measurement of the Outer Model

This section briefly discusses the outcome of the final measurement model that is used in the AMOS analysis to arrive at the goodness of fit indexes for the structural model. The outcomes of these analyzes strongly reflect the opinion of Chin (1998b) and Richard (2007) which both suggested that making use of three or at most four measurement items per each constructs is the best, that any attempt to use items that is above five will lead to an unacceptable structural equation modeling results. For this study, all the CRM dimensions constructs and perceived service quality were each left with three (3) items per constructs after careful deletion that is based on initial factor loadings, cross loadings and items with higher modification indexes. Below is figure 5.6 that shows that all the remaining measurement items are all above the suggested 0.60 cut off criteria for SEM loadings (Byrne, 2010; Hair et al., 2006). Meanwhile this cut off criterion is not applicable to the performance measurement metrics such as FCR and caller satisfaction because they are observed variables that are measured by single item that was based on call center survey in 2009.

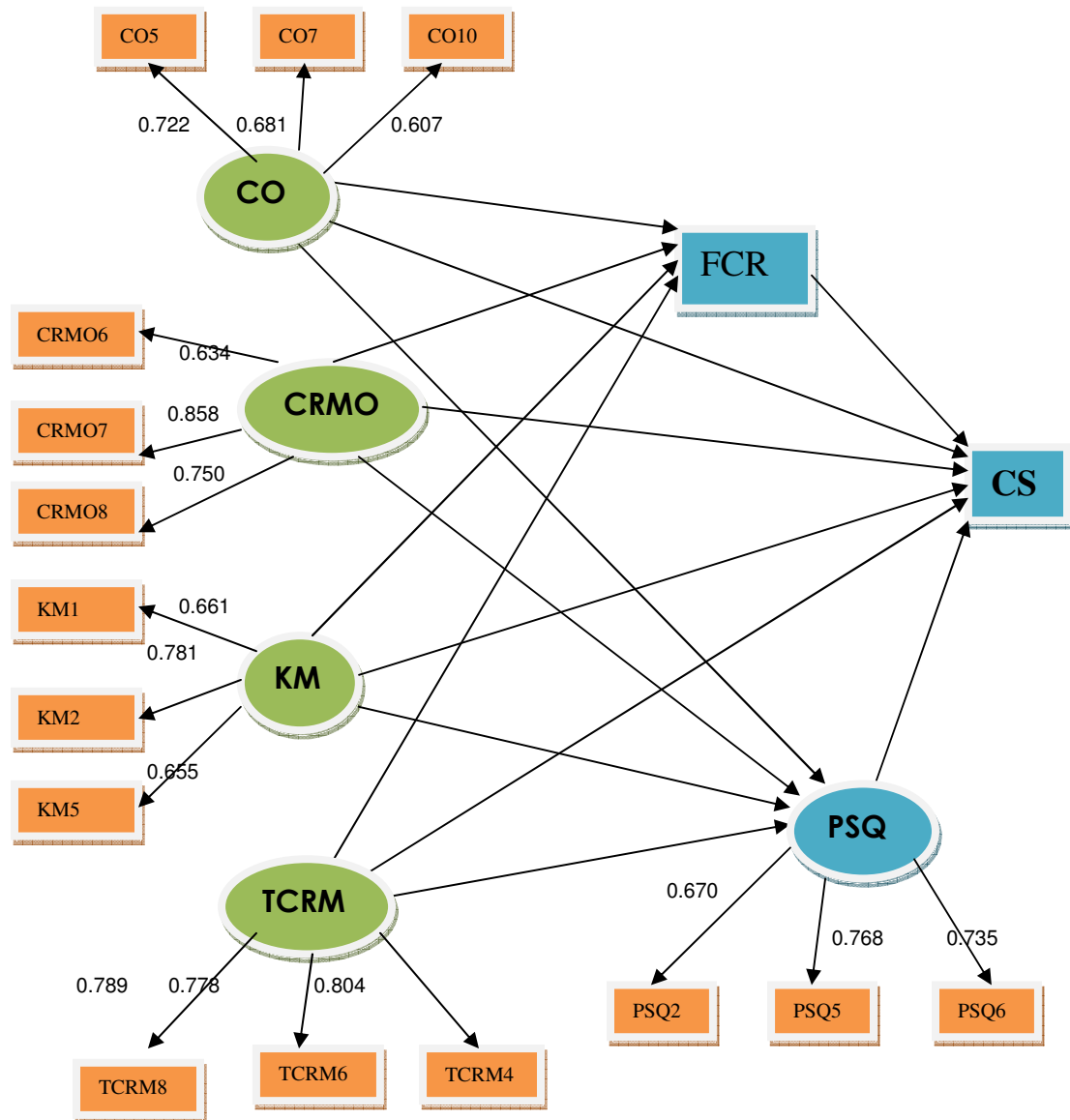


Figure 5.6: Composite scales for final measurement model

To further establish the validity of the results above, the researcher evaluated all the composite indicators through the assessments of their individual communalities, composite reliabilities, Cronbach's alpha, variance extracted (VE), so as to be sure that each indicator that is measuring each constructs are highly related.

This evaluation assisted this study in ascertaining the internal consistency of the data in each constructs for the final measurement model. The resultant evaluations show that majority of the remaining measurement items were all above the suggested cut off criteria of 0.50 for communality, 0.70 for Cronbach's alpha, variance extracted and composite reliability, with the exceptions of PSQ2 and PSQ5 that have a lower communality but higher loadings in EFA (Hair et al., 2006; Nunnally and Bernstein, 1994). Although both CRM dimensions and perceived service quality items ought not to have gone through EFA because they are all secondary items, but the researcher deem it fit given that this is the first notable research that is making use of them in Malaysian context. This lower communality may be attributed to existing literatures by Feinberg et al (2002; 2000) which empirically argued that operational variables apart from first call resolution and waiting time are not related to caller satisfaction.

But notably, other subsequently researchers like Dean (2007; 2002) and Roland and Werner (2005) have a contrary view that establish a positive relationship between this operational variables and caller satisfaction. And thus, it was based on these recent empirical findings that the researcher has hypothesized the positive relationship between perceived service quality and caller satisfaction. Hence, below is table 5.18 that aptly demonstrates the strong reliability both in the composite reliability and Cronbach's alpha, and strong discriminant validity as indicated in the variance extracted in the overall measurement model.

Table 5.18: Composite Indicators for Final Measurement Model

Code	Communality	Composite Reliability	Cronbach α	VE
CO5	0.635	0.956	0.706	0.978
CO7	0.756			
CO10	0.757			
CRMO6	0.635	0.936	0.791	0.976
CRMO7	0.772			
CRMO8	0.692			
KM1	0.746	0.953	0.739	0.979
KM2	0.672			
KM5	0.709			
TCRM4	0.732	0.961	0.833	0.992
TCRM6	0.743			
TCRM8	0.773			
PSQ2	0.479	0.954	0.769	0.979
PSQ5	0.655			
PSQ6	0.481			

Note. VE = Variance Explained

5.9.2 Final Structural Inner Model

Given that the initial CRM dimensions and call center performance structural model was conceptualized based on the extant literature, making the individual linkages between the path analyses as an explicit hypothesis to be tested in this study. For this research, there are fourteen (14) hypotheses to be tested, below is figure 5.7 that shows all the paths analyses and the variance explained (R^2) for the three endogenous variables, namely: first call resolution, perceived service quality and caller satisfaction.

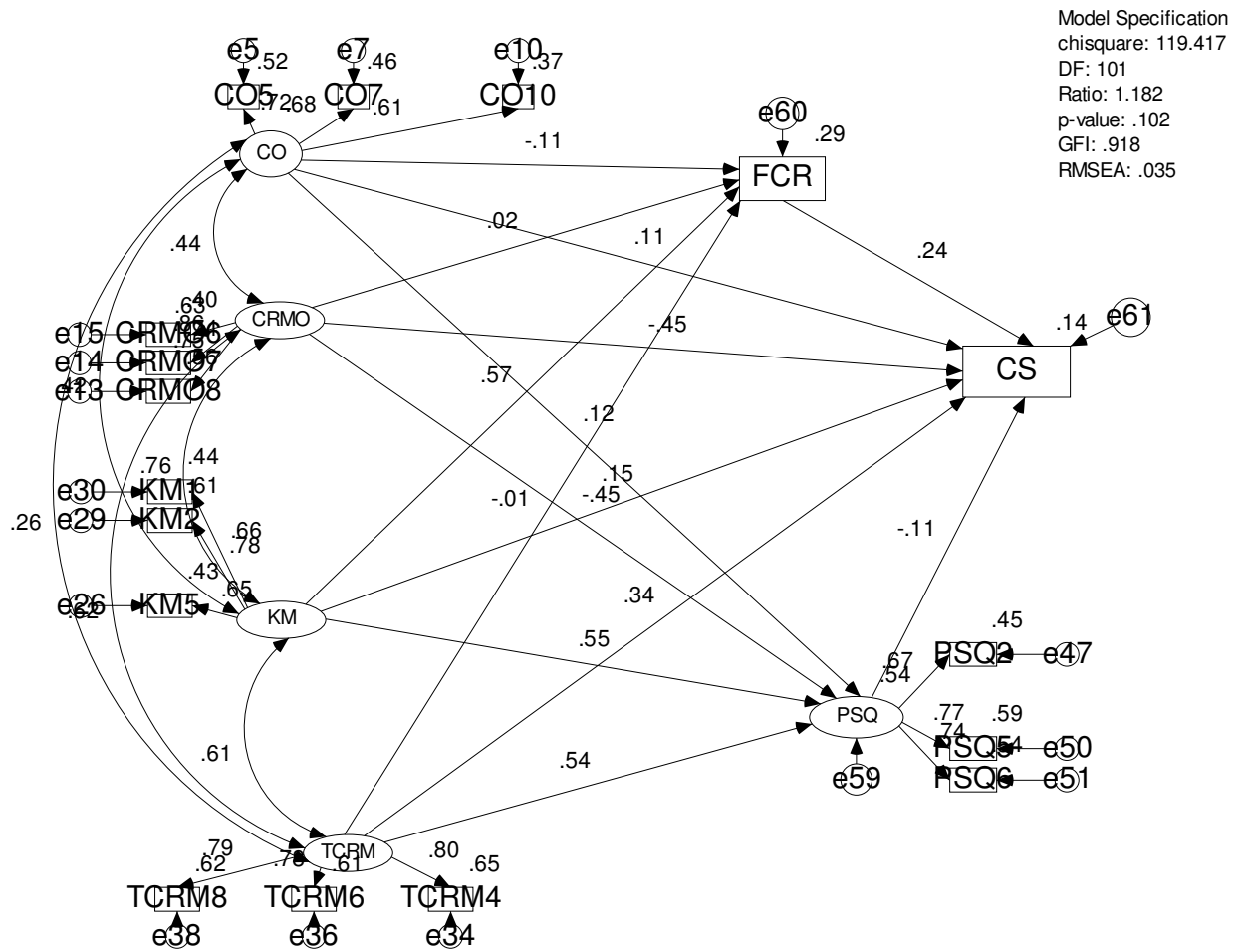


Figure 5.7: Structural Inner Model with path analyses and R²

As indicated above, the overall result shows that all the measurement variables i.e. customer orientation, knowledge management, CRM organization and technology based CRM explains 29 percent of the variations in first call resolution (FCR), and 54 percent of the variations in perceived service quality. In the extant literatures, it is observable that this is the first academic research that has empirically indicated the percentage of variations in FCR and PSQ that is determined by CRM implementations. For first call resolution, Dean (2007) only

incorporate customer orientation as the independent and argued on the need for future researchers to explicitly cover the remaining CRM application processes.

Meanwhile, the aggregate results shows that the combined effect of CRM dimensions, first call resolution and perceived service quality only account for 14% of the variability in caller satisfaction, with only CRM organization, Technology based CRM and first call resolution that are statistically significant. Meanwhile, the statistical significance of CRM organization cannot be counted because it went against the hypothesized positive relationship. This result further confirms the findings in Feinberg et al (2000) that established a weak ($R^2 = 5\%$) relationship between call center operational processes and caller satisfaction. Detail explanations are provided under the direct effects, indirect effects, total effects and hypothesis testing. For further verifications of the detail list of the above results, below are tables 5.19 and 5.20 that are directly extracted from AMOS 16 on the R^2 and the standardized beta estimates for your perusal.

Table 5.19: Squared Multiple Correlations (R^2)

	Estimate
FCR	.294
PSQ	.539
CS	.138

Table 5.20: Standardized Beta estimates (Direct)

	Estimate
PSQ<--- CO	.121
PSQ<--- CRMO	-.449
PSQ<--- KM	.550
PSQ<--- TCRM	.542
FCR<--- CO	-.111
FCR<--- CRMO	.024
FCR<--- KM	.567
FCR<--- TCRM	-.010
CS <--- CO	.115
CS <--- CRMO	-.451
CS <--- KM	.150
CS <--- TCRM	.336
CS <--- PSQ	-.107
CS <--- FCR	.241

5.9.3 Alternative/Competing Model

It has been theoretically argued that researchers' chance of improving the fitness of a model in association with the underlying theories after initial regression analysis requires re-specification of the hypothesized structural model in SEM (Hair et al., 2010). To do this, there is need to delete those paths that have little theoretical relevance and less than 0.08 loading weights (Hair et al., 2006). This re-specification has led to the deletion of three (3) paths relationships i.e. customer orientation to first call resolution (-.11), CRM organization to first call resolution (.02), and technology based CRM to first call resolution (-.01). The observed lower loadings and non statistical significance of technology based CRM is very consistent with studies like Feinberg et al (2002; 2000). In that study they empirically argued that the use of customer information and CRM

technology enablers will only enable the implementations of a set of interactive customer service activities that will assist in achieving the desired level of first call resolutions that would lead to caller satisfactions. Hence, the result as obtained in the first structural model indicates that although CRM technologies are key enabler, its application has no significant impact on FCR.

For this study, there exist a statistically weak positive relationship between customer orientations, but neither first call resolution nor perceived service quality positively mediate the relationship. Notably, after this re-specification only very little changes specifically in the percentage of the variance that is explain in first call resolution (from 29% to 28%) and loadings of the two remaining relationships in customer orientation improved by 0.01. The model fit slightly improves both in chi-square, degree of freedom, p-value, GFI and RMSEA. Below is the re-specified model in figure 5.8 after a careful deletion of the above three hypothesized relationships:

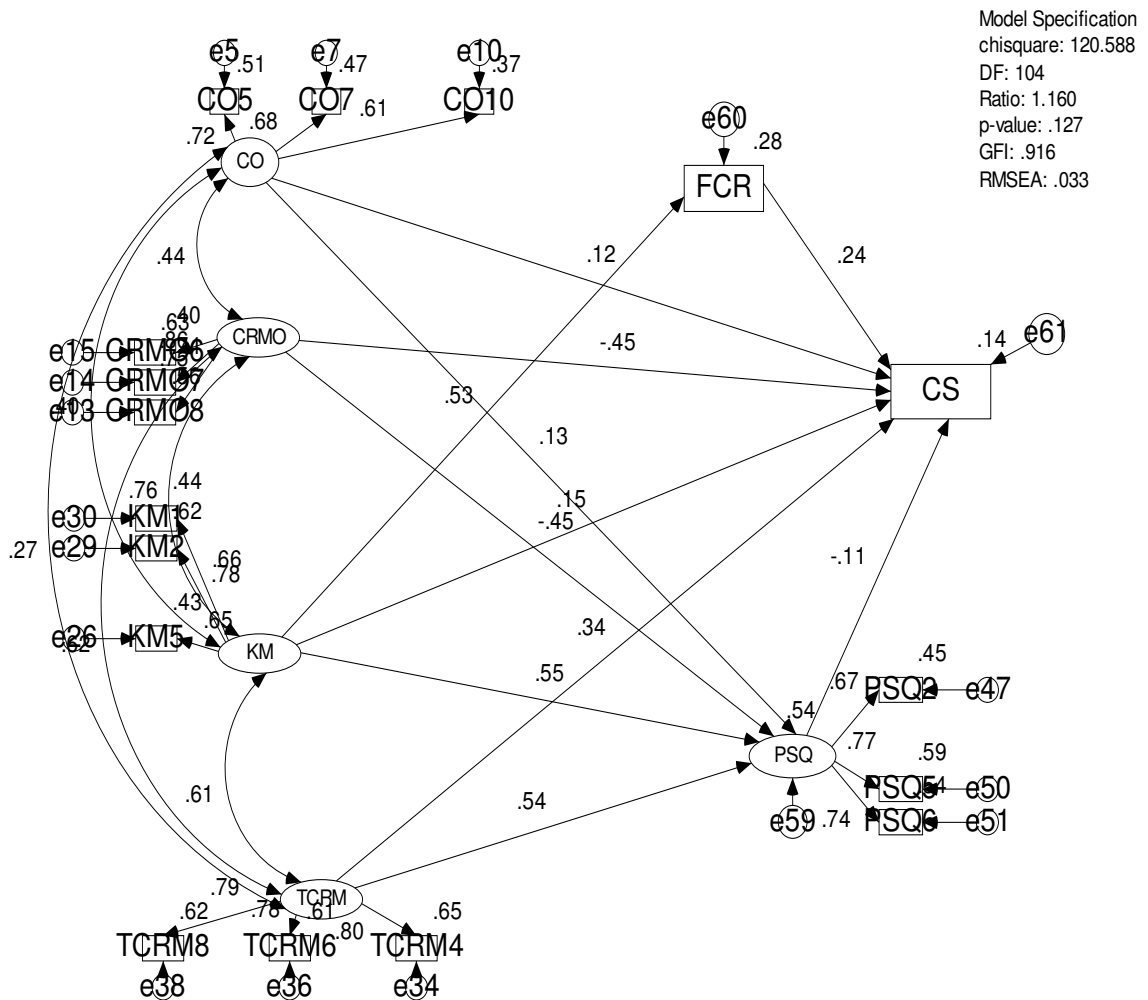


Figure 5.8: Re-specified Alternative/Competing Model

As evident in both the final revised model and the alternative/competing model that the path coefficients has been interpreted as statistically equivalent to the normal standardized beta weights that calculated in any multiple regression analysis (Byrne, 2010). Some authors have argued that the standardized path coefficients should normally be between the values of 0.20 and 0.30 for it to be meaningful (Dean, 2007; Roland and Werner, 2005). Meanwhile, Hair et al (2006) argued on the need for a path coefficient to be up to 0.08 as a criteria for

retaining it, and that other higher paths values mainly indicates the significant effects that such variables has on the hypothesized relationships.

In overall, the above results as obtained from the structural model analysis have empirically shows that CRM dimensions has significant effects on call center performances, with specific notes on the strengths that knowledge management possessed in influencing first call resolutions (standardized estimate 0.57, $p < .05$) on customer issues and caller satisfactions (standardized estimate 0.55, $p < .05$). These same results apply to the significant effects that technology based CRM has on perceived service quality (standardized estimate 0.54, $p < .05$) and caller satisfaction (standardized estimate 0.34, $p < .05$). Although the mediating effects of perceived service quality is negative and not statistically significant, a situation that is contrary to the hypothesized relationship in the research model. Meanwhile, this result is still consistent with the findings in Feinberg et al (2002; 2000) where they have empirically argued that operational variables such average handling time; numbers of calls received etc. are not significantly related to caller satisfactions within the inbound units of call centers.

5.9.4 Model Fit

As could be seen in Figure 5.5 and 5.6, SEM result for the overall model shows that the chi-square (χ^2) statistic is very small for both the final revised model and the alternative competing model specifically with values ($\chi^2 = 119.417$) and ($\chi^2 =$

120.588). The degrees of freedoms for these two models are also very small with values ($Df = 101$) and ($Df = 104$). Both models also achieved the suggested insignificant p-values, where of $p = 0.102$ for final revised structural model and $p = 0.127$ for re-specified competing structural model. These results are very good because it is greater than the suggested p-value of 0.05, a valid indication that the model is statistically accepted (Byrne, 2010; Hair et al., 2006). This is because the inability of an hypothesized structural model to achieve a p-value that is greater than 0.05 and a chi-square that its ratio to degree of freedom is less than 5 will technically lead to the rejection of the model as stipulated in the goodness of fit indices of any SEM analysis (Byrne, 2010; Eid, 2007; Hair et al., 1998; Fornell and Larcker, 1981).

Notably, the ratio of the chi-square of these two models to their degree of freedom are $CMIN/DF = 1.182$ for final revised model and $CMIN/DF = 1.160$ for competing model. These values are far smaller compared to the suggested less than 5 that is prescribed for the achievement of goodness of fit indices (Hair et al., 1998). The results in table 5.20 below have statistically shown that the model in this study is acceptable. Also very important are the other indicators to achieve goodness of fit in any model: such as GFI: 0.918, CFI: 0.978, TLI: 0.971, RMSEA: 0.035 to mention few. A critical comparism of these results with the above corresponding values in Tables 5.17, 5.18, and 5.19 has suggested that the hypothesized structural model in figure 5.5 empirically fits the data very well.

For further verifications of these results from the structural model, below is table 5.21 that explicitly outlined the research finding:

Table 5.21: Goodness of Fit Index for the Model

Final Models	Criteria	Results
CMIN/Df	< 5	1.182 (119.417/101)
P-value	> 0.05	0.102
GFI	> 0.9	0.918
CFI	> 0.95	0.978
TLI	> 0.9	0.971
RMSEA	< 0.05	0.035

Source: Byrne, 2010

As evident in table 5.21, above that all the important criteria to achieve a model fit are well achieved, inclusive of the R^2 for all the exogenous variables. Although there are arguments on what specific level of R^2 should be accepted in determining model fitness, nevertheless there are some known authors that have provided guidelines to these issues of R^2 . Notable among them is Falk and Miller (1992) which suggested that the R^2 for the endogenous variables in any structural model must be greater than or equal to the values of 0.10 and above for it to be accepted meaningful. For this study, the values of the R^2 for all the three (3) endogenous variables are greater than the suggested cut off criterion of 0.10, namely: First call resolution ($R^2 = 29\%$), Perceived service quality ($R^2 = 54\%$) and Caller satisfactions ($R^2 = 14\%$) respectively.

To summarize the CRM dimensions and call center performance model, the theoretical relationships that exist between these constructs have been critically

evaluated through the examinations of the regression loadings and the significance of the different path coefficients as stated in the hypothesized structural model. The structural model has also been re-specified with the general attempt of providing an improved and better parsimonious fit that most suit the dataset. This revised model shows satisfactory fit indices from the major model specification indices, but with no improvement in the R^2 .

5.9.5 Direct Effects

The direct effects of a structural model are those effects that go directly from one latent variable to another known variable within the same model. For this study the results as listed in table 5.22 below has indicated that the implementations of customer relationship management dimensions in the contact centers have a significant impact to play in achieving first call resolution and perceived service quality, but weak effects on caller satisfaction. This submission is based on the variance explained by the structural model on first call resolution ($R^2 = 29\%$), perceived service quality ($R^2 = 54\%$) and caller satisfactions ($R^2 = 14\%$) respectively.

Thus, depending on these results it is arguable to say that the above findings strongly support the empirical findings in Feinberg et al (2002; 2000), and industry reports like SQM (2005) and Call center.net, (2008) that have all argued that a mere use of customer orientation policies and programs, organizing CRM

around every units of the company, exploring customer knowledge management techniques and implementing CRM technologies will not automatically lead to caller satisfaction. Rather, the truth remains that the use of these CRM dimensions and technology enablers will only enable the implementations of a set of interactive customer service activities that will assist in achieving the desired level of first call resolutions, perceived service quality and caller satisfactions (Eid, 2007; Sin et al., 2005; Yim et al., 2005). Below is table 5.21 that explicitly list out the direct effects of the revised hypothesized model:

Table 5.22: Direct Effects of Revised Mode

	Estimate	S.E.	C.R.	P	Status
PSQ <--- CO	.109	.102	1.066	.286	Not Sig
PSQ <--- CRMO	-.487	.222	-2.199	.028**	Sig
PSQ <--- KM	.517	.194	2.667	.008**	Sig
PSQ <--- TCRM	.431	.113	3.797	***	Sig
FCR <--- CO	-.160	.149	-1.073	.283	Not Sig
FCR <--- CRMO	.043	.292	.146	.884	Not Sig
FCR <--- KM	.857	.277	3.098	.002**	Sig
FCR <--- TCRM	-.013	.153	-.084	.933	Not Sig
CS <--- CO	.188	.189	.990	.322	Not Sig
CS <--- CRMO	-.895	.453	-1.975	.048**	Sig
CS <--- KM	.257	.427	.602	.547	Not Sig
CS <--- TCRM	.487	.244	1.994	.046**	Sig
CS <--- PSQ	-.196	.314	-.623	.533	Not Sig
CS <--- FCR	.273	.113	2.408	.016**	Sig

*P < 0.10; **P < 0.05; *** P < 0.01, **Sig** = Significant; **Not Sig** = Not Significant

Note: Knowledge Management (KM), Technology based CRM (TCRM), CRM organization (CRMO), Customer Orientation (CO), First Call Resolution (FCR), Perceive Service Quality (PSQ) and Caller Satisfaction (CS).

5.9.6 Mediating Effects and Hypotheses

First call resolution (FCR) and perceived service quality (PSQ) were both theoretically hypothesized as potential mediators of CRM dimensions; however the results as obtained in table 5.22 above shows that perceived service quality is negatively related to caller satisfactions. Whereas first call resolution is positively related and statistically significance to caller satisfactions, depending on this empirical results Hair et al (2006) argued that for any researcher to proceeds with model re-specification as initially hypothesized in SEM, they have to delete those paths that have little theoretical relevance and less than 0.08 loading weights (Hair et al., 2006). In order for this study to be able to determine the true value of first call resolution as a mediating variable, the researcher deleted perceived service quality in the re-specification of the mediating effects due to its negative and insignificant effects.

These results indicated that the achievement of perceived service quality within the call centers does not significantly play any major roles in the implementations of CRM dimensions as the antecedents to achieving caller satisfaction. Although it does indicate that the implementations of CRM dimensions in call centers assist in achieving the desired operational efficiency through perceived service quality. A critical view of the results from the re-specified model shows a very surprising observation which is that there weren't any major changes after this deletion, the R^2 for caller satisfactions only decreased by 1% (from 14% to 13%

after the deletion of PSQ). All other modification indices such as GFI, CFI, P-value, RMSEA etc have little or no changes after the deletion of the mediating effects of perceived service quality. In overall, very important and notable factor to bear in mind is that the achievements of first call resolution ($R^2 = 29\%$) and perceived service quality ($R^2 = 54\%$) does significantly dependent on effective implementations of CRM dimensions. For a detailed understanding of the mediating effects of first call resolution on the relationships between CRM dimensions and caller satisfactions, below is table 5.23 for your perusal:

Table 5.23: Interpretations of Indirect Effects and Mediating Hypotheses

Hypotheses	Exogenous		Mediated		Endogenous	Direct Effects Estimates	Indirect Effects Estimates	Mediating Hypothesis
H5b	CO	→	FCR	→	Caller Satisfaction	0.103	-0.026	Not Mediating
H5c	CRMO	→	FCR	→	Caller Satisfaction	-0.402	0.006	Mediating
H5d	KM	→	FCR	→	Caller Satisfaction	0.092	0.134	Mediating
H5e	TBCRM	→	FCR	→	Caller Satisfaction	0.274	-0.001	Not Mediating

5.9.7 Total Effects

Evaluating the total effects of a structural model does not only involve evaluating the direct relationships that exist among the hypothesized constructs, but it also involves evaluating the indirect effects that these constructs have on the mediating and the dependent (Byrne, 2010). This argument is premised on the fact that the indirect effects are the manifest of the structural model and are very relevant for the evaluation processes, interpretations and the general understandings of the total impacts that one construct has on the other within the

CRM dimensions and caller satisfaction models. Below is table 5.24 that explicitly outlined the total effect as extracted and explained above in the hypothesized model:

Table 5.24: Goodness of Fit Index (Each Construct, Measurement and Structural Model)

Final Models	CO	CRMO	KM	TCRM	PSQ	Exogenous (CO, CRMO, KM & TCRM)	Endogenous (FCR, PSQ & CS)	Hypothesized Model	Revised Model	Alternative/Competing Model
Initial Items	10	10	10	10	7	40	9	49	49	40
Items Remaining	5	6	7	6	5	20	8	49	17	17
CMIN (X ²)	3.662	15.806	10.455	16.876	9.085	322.963	38.172	3092.758	119.417	120.588
Df	5	9	9	9	5	164	19	1109	101	104
CMIN/Df	0.732	1.756	1.162	1.875	1.817	1.969	2.009	2.789	1.182	1.160
P-value	0.385	0.071	0.315	0.051	0.106	0.000	0.006	0.000	0.102	0.127
GFI	0.987	0.968	0.978	0.963	0.975	0.838	0.947	0.578	0.918	0.916
CFI	0.999	0.977	0.996	0.985	0.986	0.888	0.949	0.632	0.978	0.981
TLI	0.998	0.961	0.994	0.975	0.971	0.870	0.925	0.610	0.971	0.975
PNFI	0.488	0.569	0.584	0.581	0.485	0.690	0.615	0.499	0.654	0.672
RMSEA	0.019	0.071	0.033	0.76	0.074	0.080	0.082	0.109	0.035	0.033

A critical evaluation of the above results has indicated that all the variables that their measurement items have gone through validity and reliability test individually achieved the suggested non-significant $p > 0.05$ in their confirmatory factor analysis. Right from customer orientation (0.385), CRM organization (0.071), knowledge management (0.315), technology based CRM (0.051), and perceived service quality (0.106). Their individual model fit indices such as GFI,

CFI, TLI and RMSEA etc were all above the suggested cut off criterions (Hair et al., 2006). This results as obtained from the total effects of the structural model analysis typically demonstrate that the implementations of CRM dimensions in call centers does positively and significantly influence first call resolution and perceived service quality, but moderately influence caller satisfaction.

Importantly, the result shows that knowledge management positively and significantly influences first call resolution and perceived service quality. The good news in it is that these two mediating variables are practically important to call center managers in achieving operational efficiency both in cost and productivity (Callcentre.net, 2008; SQM, 2005). Similarly the result establishes the positive and significant impact that technology based CRM has on perceived service quality and caller satisfaction within the contact center industry. The aforementioned results have also provided the required empirical support that McNally (2007) conceptualized on the positive impact that successful implementations of technology based CRM would have on the implementing call centers.

5.10 Hypothesis Testing

This part proffer answers to the research questions in chapter one that led into hypothesizing 14 direct relationships on the impact of CRM on caller satisfactions, as well as the impact of FCR and perceived service quality on caller satisfactions. For this study, the results of the 14 direct structural analysis were entirely based on the minimum error level of 0.05, meaning that there is 95% confidence that the same results would occur if the data were collected over time.

The 14 hypotheses as listed in this research extensively covered the theoretical relationships that exist between the implementations of CRM dimensions (independent variables) and call center performance indicators (mediating and dependent variables). Specifically, there are four independent variables in the research model, customer orientation, knowledge management, CRM organization and technology based CRM. It is good to emphasized that these four independent variables are the original CRM dimensions as conceptualized by Sin et al (2005) and Yim et al (2005), with valid empirical arguments in favor of its applicability within many industries.

First call resolution is a call center performance variable that is based on customer judgment, while perceived service quality is a long standing operational variable that assist call centers in determining their operational efficiency. Both the CRM dimensions items and perceived service quality items were measured based on managers' perceptions, while first call resolutions and caller

satisfactions were measured based on call center 2009 customer satisfaction and first call resolution surveys. Each structural path in the model represents a potential relationship between the two variables (constructs) and can be tested for significance. In this structural model, the structural path coefficients as shown in the models are equivalent to the coefficient (β) in the regression analysis. It normally assists in measuring the unidirectional relationships that exist between two or more constructs, take for instance the effects of CRM dimensions on first call resolutions, perceived service quality and caller satisfactions. Below is table 5.25 which consist of detail list of hypotheses as conceptualized in chapter 3:

Table 5.25: Summary of the hypothesis testing results

	Hypothesis	Accept / Reject
1	Hypothesis 1a: Customer Orientation of the customer contact center is positively related to First Call Resolution.	Reject
2	Hypothesis 1b: Customer Orientation of the customer contact center is positively related to Perceived Service Quality	Reject
3	Hypothesis 1c: Customer Orientation of the customer contact center is positively related to Caller Satisfaction.	Reject
4	Hypothesis 2a: CRM Organization of the customer contact is positively related to First Call Resolution	Reject
5	Hypothesis 2b: CRM Organization of the customer contact is positively related to Perceived Service Quality	Reject
6	Hypothesis 2c: CRM Organization of the customer contact is positively related to Caller Satisfaction.	Accept (Indirect)
7	Hypothesis 3a: Knowledge management of the customer contact center is positively related to First Call Resolution.	Accept
8	Hypothesis 3b: Knowledge management of the customer contact center is positively related to Perceived Service Quality.	Accept
9	Hypothesis 3c: Knowledge management of the customer contact center is positively related to Caller Satisfaction.	Accept (Indirect)
10	Hypothesis 4a: Technology based CRM of the customer contact center is positively related to First Call Resolution.	Reject
11	Hypothesis 4b: Technology based CRM of the customer contact center is positively related to Perceived Service Quality.	Accept
12	Hypothesis 4c: Technology based CRM of the customer contact center is positively related to Caller Satisfaction.	Accept
13	Hypothesis 5a: First Call Resolution of the customer contact center is positively related to Caller Satisfaction.	Accept
14	Hypothesis 5b: First Call Resolution of the customer contact center positively mediates customer orientation and Caller Satisfaction.	Reject
15	Hypothesis 5c: First Call Resolution of the customer contact center positively mediates CRM organization and Caller Satisfaction.	Accept
16	Hypothesis 5d: First Call Resolution of the customer contact center positively mediates knowledge management and Caller Satisfaction.	Accept
17	Hypothesis 5e: First Call Resolution of the customer contact center positively mediates technology based CRM and Caller Satisfaction.	Reject
18	Hypothesis 6a: Perceived Service Quality of the customer contact center is positively related to Caller Satisfaction.	Reject
19	Hypothesis 6b: Perceived Service Quality of the customer contact center positively mediates customer orientation and Caller Satisfaction.	Reject
20	Hypothesis 6c: Perceived Service Quality of the customer contact center positively mediates CRM organization and Caller Satisfaction.	Reject
21	Hypothesis 6d: Perceived Service Quality of the customer contact center positively mediates knowledge management and Caller Satisfaction.	Reject
22	Hypothesis 6e: Perceived Service Quality of the customer contact center positively mediates technology based CRM and Caller Satisfaction.	Reject

As indicated in the list of hypothesis above, Hypotheses 1a is rejected based on its negative and insignificant effect on first call resolution. Meanwhile hypotheses 1b and 1c support the hypothesized positive relationship between customer orientation, perceived service quality and caller satisfactions, but they were also rejected because their impacts are not statistically significant. Hypothesis 2a supports the hypothesized positive relationship between CRM organization and first call resolutions but was rejected based on its insignificant effects. Surprisingly both hypotheses 2b and 2c were statistically significant but depict negative impacts of CRM organization on perceived service quality and caller satisfactions, but the mediating impact of first call resolution exhibit a positive and significant impact of CRM organization on caller satisfactions, hence hypothesis 2b was rejected while hypothesis 2c was indirectly accepted.

Hypotheses 3a, 3b and 3c all supported the hypothesized positive relationships and were all statistically significant on the relationships between knowledge management and first call resolutions, perceived service quality and caller satisfactions, but meanwhile is good to mention that the acceptance of hypothesis 3c was based on the indirect significant effects of first call resolution on caller satisfaction as clearly stated in table 5.22. Hypothesis 4a is rejected based on its negative and insignificant effect on first call resolutions, but both hypotheses 4b and 4c were accepted based on the positive and significant impacts that technology based CRM has on perceived service quality and caller satisfaction. Hypothesis 5a is accepted due to the positive and significant effects that first call resolution has on caller satisfactions; arguably this is not surprising

because of strong theoretical and practical supports it enjoyed on caller satisfactions. The rejection of hypothesis 6a was based on its negative and insignificant impacts that perceived service quality has on caller satisfaction, this result further confirm the mixed reactions that the extant literatures have created.

5.11 Chapter Summary

This chapter empirically described the characteristics of the outcomes from the questionnaire response that was collected, the techniques that was employed in measurement refinements; processes taken in measurement instrument validity and reliability tests, and finally presented the results that was obtained from the exploratory factor analysis, confirmatory factor analysis, structural analysis in AMOS and hypotheses testing. As indicated in the various analyses above that the final revised model has the required parsimonious solutions for the dataset, hence making little or no difference when the structural model was re-specified. Five of the fourteen hypotheses were directly accepted as significant, but two was indirectly accepted through the mediation effects of first call resolution and perceived service quality, while the remaining seven hypotheses were rejected mainly because of their negative or insignificant effects.

The key empirical finding in this study is that the implementations of CRM dimensions in call centers directly and indirectly positively influences caller

satisfactions. In addition to this is that this study has empirically validates the mediating role of first call resolutions on call center performances. Negative impacts of benchmarking caller satisfactions on operational variables such as average handling time, numbers of calls handle etc was equally exacted in this empirical findings. These findings have serious theoretical and practical implications for both the academics and the practitioners. Next to this chapter is chapter 6 that discusses the various practical and theoretical implications that the above results have for practitioners and academics, and its general contributions to marketing and technology management literatures.

CHAPTER 6

6.0 DISCUSSION AND CONCLUSION

6.1 Introduction

This last chapter will recapitulate the overview of the research project, its findings, and detailed discussions of its contributions to both theory and practice. It finally concludes with its limitations and alternative suggestions for future research.

6.2 Recapitulations of the Research Findings

Based on CRM model as conceptualized by Sin et al (2005) and Yim et al (2005) to determine the impact of CRM dimensions in service industry, the objective of this study is to determine the impacts of CRM dimensions on caller satisfaction within the inbound unit of customer contact center industry. Importantly, the first objective in this study is to test a model that can explain the relationships between CRM dimensions and caller satisfactions. The second objective seeks to examine the relationships between CRM dimensions, first call resolution and perceived service quality. The third research objective is to determine the relationships between first call resolutions, perceived service quality and caller satisfactions.

A quick revisit to the research objectives has shown that this study was primarily undertaken to provide answers to three research questions, namely: (1) what is the relationships between CRM dimensions and caller satisfactions within the contact center industry? (2) What are the relationships between CRM dimensions, first call resolution and perceived service quality? (3) What are the relationships between first call resolutions, perceived service quality and caller satisfactions?

As indicated in Chapter 5, this study collected survey data from the managers in Malaysian contact center industry. For ease of generalizability of the research findings, 400 questionnaires were randomly distributed from the list of 600 call centers as alphabetically listed by the CRM and contact center association of Malaysia via mail and web survey. This type of data collection method is consistent with existing industry literatures such as Yim et al (2005) and Feinberg et al (2002; 2000). From this number, only 173 questionnaires were returned out of which 5 were discarded because they were incomplete. Thus, putting the total usable responses for further analysis at 168 and constituting an overall 43.3% response rate for this study.

To test the factorial validity of the measurement instruments, this study made used of exploratory factor analysis (EFA). The results from the EFA analyses indicated that some items were cross loading between the CRM dimensions and perceived service quality. As a precaution to the cross loading effects, some

items were deleted at the confirmatory factor analysis stage so as to determine the true measurements indicators for all the variables in the hypothesized model. The data were finally analyzed using AMOS 16 software to test the hypothesized relationships in the structural model of the study. Within the three (3) alternatives significance level that are available for researchers, this study used 0.05 level of significance as the critical level for deciding the acceptability or rejection of the hypotheses.

Answering the first research question, this empirical study found that the application of CRM dimensions in Malaysian contact center industry has major effects on caller satisfactions. Out of the four hypothesized positive relationship under this research question, three were supported, one is directly supported and two are indirectly supported through the mediating effects of first call resolutions. Even the relationship between customer orientation and caller satisfaction which is the only hypothesis that is not supported is also found to be positively related to caller satisfaction, but not statistically significant within the selected 0.05 significance level. This result shows that under the new foreign direct investment policies of the Malaysian government, the contact centers are trying their best to explore the opportunities in CRM dimensions so as to benefit from both domestic and foreign investment opportunities in contact centers, with more emphasis on call center outsourcing.

For answers to research question two, this study empirically found that out of the two hypothesized relationships, only one is supported. The findings indicated that there is positive and significant relationship between first call resolutions and caller satisfactions. But perceived service quality as obtained from the results is negatively related to caller satisfaction, a situation that is contrary to the hypothesized positive relationship. Although there are existing theoretical supports for this outcome, but notable in this finding is that call centers' ability to efficiently deal with callers has nothing to do with their satisfactions. Meanwhile, the ability of call centers in resolving callers' reasons for calling in the first call was established in this study as having significant influence on caller satisfactions.

For research question three, this study found that out of the 8 mediating hypothesized positive relationships, only three were supported and just two out of these three relationships were statistically significant. Very important to note under research question three is that FCR as a major contribution in this study is positive and significantly mediated the relationships between CRM organization, knowledge management and caller satisfactions. This practically means that the higher the call centers are able to integrate CRM system within its organizational structure and able to efficiently manage its customer information knowledge, the better it will achieve first call resolutions in customers enquires and caller satisfactions.

6.3 Effect of CRM Dimensions

As clearly indicated in the results for this study that out of the four dimensions of CRM, knowledge management and technology based CRM are the most important factor that predicts CRM impacts on call centers performances. Both knowledge management and technology based CRM positively influences first call resolution, perceived service quality and caller satisfactions. This research findings has provided the required empirical evidence in support of CRM literatures where knowledge management and technology based CRM have been conceptualized as a major factor that contributes to the success of CRM applications in service industry and call centers in particular (Sin et al., 2005; Yim et al., 2005).

6.3.1 Effect of Customer Orientation on First call Resolutions, Perceived Service Quality and Caller Satisfaction

Recapitulating on the effects of hypothesis one, H_{1a} : Customer orientation of the customer contact center is positively related to first call resolution, the final result from the empirical data analysis shows that customer orientation is negative and does not significantly impacts call centers' ability to achieve first call resolutions on customers enquiries, complaints or request. That is, the extent to which a call center can put in place strategic measures through which it could identify and satisfy customers needs and wants does not have any significant effect on achieving first call resolutions. The main reason behind this is that customer

orientation is targeted at understanding the customers' characteristics and their needs, thus achieving those needs in customers' first call are subject to many factors such as organization policy, product availability, decision making style, etc. At times customer's reason for calling may be beyond the decision making capability of the customer representative officer or such request may need further processing before approval, and doing this will automatically require the customer to make a call back. This finding is theoretically consistent with the findings of Roland and Werner (2005) where they have empirically shown that there is no direct significant impact between customer orientation of call centers and caller satisfaction. But meanwhile the implication in this finding is that call center inability to fully understand their customers' characteristics and their likely needs may further lead to achieving low resolutions in customers' first call and this can further impede caller satisfactions. Of theoretical interest in the finding is that customer orientations is both negative and insignificant with first call resolutions, a situation which indicates that the customer orientation practices in call centers does not incorporate resolving customers issues on first call, rather it is more on getting to know more about the customers and their needs. Thus, leading to the empirically findings in this study that indicate a negative and insignificant relationship between customer orientations and first call resolutions.

H_{1b}: Customer orientation of the customer contact center is positively related to Perceived Service Quality. This relationship has been hypothesized based on existing empirical evidence from the extant literatures that have established that there exist positive relationships between customer orientation and perceived

service quality (Dean, 2007; 2002). However, the result supports the positive hypothesized relationship but it is not statistically significant. This empirical finding is consistent with few extant literatures that have argued that customer orientation is not an accurate predictor of call center performances (Jayachandran et al., 2005; Roland and Werner, 2005). One of the arguments from these literatures is that for the customer orientation of a given company to efficiently manifest its benefits, the company practically needs a medium upon which the three basic characteristics of market orientation could be satisfied i.e. generation of required intelligence, efficient disseminations of intelligence, and the company's perceived responsiveness in resolving customers' issues on their first call. This result support the view of Roland and Werner (2005) which argued that for customer orientation to effectively contribute to company's performance, there is need for extra medium that will indirectly assist the intelligence dissemination capability. For Gummesson (2004), CRM is only a practical application of the relationship marketing doctrines, meanwhile there is strong need for the presence of customer orientation and the required modern technical capabilities that will actualize the desired call center performances (Yim et al., 2005).

Given the weak and insignificant relationship between customer orientation and perceived service quality of Malaysian call centers, the finding in this study is consistent with other literatures that have argued that market orientation has not been uniformly agreed upon as a major determinant of organizational

performances. For Wang et al., (2006), the effectiveness of customer orientation can better be understood through its moderating effects between CRM processes and CRM performances. Integrating this into the current result as indicated that the stronger the customer orientation of a firm, the better its impact on perceived service quality and caller satisfactions. Meanwhile, looking at this result from the other angle, it practically means that call centers with a weak customer orientation are most likely to be susceptible to the inability of unsuccessful CRM implementations and performances. And this had been empirically reflected in the lower percentage of the variance in caller satisfaction that is explained by CRM implementations in Malaysia contact center industry.

The theoretical and practical implications of this findings is that neither customer orientation nor perceived service quality are sufficient determinant of caller satisfactions. An alternative to this view could be that any call centers that have a strong customer orientation but moderate channel (perceived service quality) that collect, analyze, interprets and effective disseminate both the customer and competitors' information might have difficulty in its ability to demonstrate and leverage its value of customer orientation to the target markets. Hence Sin et al (2005) while conceptualizing CRM dimensions emphasized that key customers' focus is a unique concept that theoretically add value to CRM impact on service industry performances. In overall, this finding as reflected in hypothesis two have shown that customer orientation cannot individually impact call center

performance without the availability of a strong medium upon which the desired customer value can effectively be delivered.

Further recapitulations of the impact of customer orientations on caller satisfaction will lead this study into the third hypothesis under customer orientation which states thus: H_{1c} : Customer orientation of the customer contact center is positively related to caller satisfaction. The theoretical basis upon which this hypothesis was formulated has its strong roots in dean (2007; 2002), Roland and Werner (2005), Sin et al (2005) and Yim et al (2005) that have all empirically tested the direct relationship that exist between customer orientation and customer satisfactions. More specifically is Dean (2007), Roland and Werner (2005) and Yim et al (2005) that were all conducted within the contact center industry. As revealed from the empirical findings in this study, there exists a positive but insignificant relationship between customer orientation and caller satisfactions.

Although several studies and empirical models have shown that the application of customer orientation with effective management techniques would lead to customer satisfaction and a corresponding increase in profit. Nevertheless, some have argued that the direct impacts of management policies on caller satisfactions could be comparably low at times (Roland and Werner, 2005). The relevance of this theoretical justification on this current study is that customer orientation is a management practices that its success is mostly dependent on

employees acceptability, whereas here in Malaysia there is a pending issue of high attrition among the call center employees (Callcentre.net, 2008; 2003). Meaning that call center's employee perspectives is a stronger motivational factor of the impacts of customer orientation on caller satisfaction. Although the result in this research shows that there exist a positive but insignificant relationship between customer orientation and caller satisfactions, this outcome is consistent with the findings in Roland and Werner (2005) where they have also found that there exist no direct significant relationship between customer orientation and caller satisfaction within the inbound units of call centers.

Therefore, it would be plausible to say that customer orientation of Malaysian call centers has a direct negative effect on first call resolutions through already identified employee issues, further leading to the low significant impact on caller satisfactions (Call centre.net, 2008; 2003). A practical justification for this could be that the employees have felt that the customer orientation policies of Malaysian call centers were implemented in a one-sided approach, falling at the expense of the employees' needs and expectations from the companies. Alternative to this is that inability of the call centers to base their service standards on a systematic and continuous data analysis of the customer needs and expectation could practically lead into low and insignificant impacts on first call resolution and caller satisfactions.

On a final note, this research through its initial interview found that higher performance requirements from Malaysian call center employees as a means of bench marking with their Western partners has consistently been resulting into higher perceived qualitative overstretch and attrition rate. However, these effects have not been seen as having a direct negative impact on caller satisfactions, but rather it has indirectly reduced caller satisfaction through employee job dissatisfactions (Call centre.net, 2008; 2003).

6.3.2 Effect of CRM Organization on First Call Resolution, Perceived Service Quality and Caller Satisfaction

A quick recapitulation of the effects of how Malaysian call centers have strategically organized their firms around CRM in terms of its human resource management, commitment of resources and general organizational structure would lead this study into critically discussing hypotheses 2a, b and c. For hypothesis 2a, this study has hypothesized thus: H_{2a} : CRM organization of the customer contact center is positively related to first call resolution. Meanwhile the research findings support the hypothesized positive relationship between CRM organization and first call resolutions, but not statistically significant (standardized estimate 0.02, P, 0.286). As obtained from the research findings, it empirically depicts that there exist a very weak relationship between CRM organization and first call resolution because the regression weight is very low at 0.02. Two possible reasons for this result are the effects of small sample size in the data

collection, variability in respondents' company size and CRM organizational procedures and the aforementioned issues of employee qualitative stretch as theoretically argued by Roland and Werner (2005).

The 152 response rate that was finally used in the structural regression analysis could empirically impede the research outputs given the complexity of the hypothesized model. Similarly, the characteristics of the respondents in terms of their company size, technology advancement and CRM applications were varying and could significantly create variations in the research outputs (Hair et al., 2010). Good examples are the multinational companies that have contact centers in Malaysia such as Nokia careline worldwide office based in Malaysia and employing more than 500 professional customer service agents, and some other telecommunications and big banks that are all employing above 300 call center customer service officers. Under the same CRM and contact centers association of Malaysia are the small firms that employ below 100 and also make use of CRM applications.

Issues of human resource management, especially in the implementations of strategies, acquisition, training and development of new hires, technology acquisition and implementation processes are all among the factors that can strongly affect the impacts of CRM organization on first call resolution and perceived service quality. Notable among the extant literatures is Yim et al

(2005) that has argued on the inherent difficulty that organizations could face in organizing their firm around CRM is the coordination of the inter-functional areas, because these mainly depend on the company's resources, its size, activities and customer characteristics. In hypothesis 2b, this study hypothesized that: H_{2b} : CRM organization of the customer contact center is positively related to perceived service quality. Contrary to this hypothesis, the research findings indicated a negative, but significant relationship (standardized estimate -0.45, P , 0.028). Although this finding went against the hypothesized positive relationship, but theoretically it is consistent with the outcomes in Yueh et al (2010) where they have empirically found that the application of transactional leadership via the implementations of contingent rewards of human resources and technological procedures around the firm would have no significant impact on knowledge applications of CRM. That is, the customer service representatives wouldn't be able to efficiently utilize these resources in achieving the desired organizations' objectives.

Despite the fact that Yueh et al (2010) conducted their study within the tourism industry, their empirical findings is in line the arguments of Sin et al (2005) that CRM applications within the service industry is similar in characteristics and applications processes. Although this hypothesis is rejected on the ground of its negative impact, as against the initial

preposition, yet it does significantly contribute to the 54% variance that is explained by CRM dimensions on perceived service quality.

As hypothesized in chapter 3 that: H_{2c} : CRM organization of the customer contact center is positively related to caller satisfaction. The finding in this hypothesis is similar to hypothesis 2b where the result indicated that there exist a negative but significant relationship between CRM organization and caller satisfactions (standardized estimate -0.45, P , 0.048). This hypothesis would have also been rejected as applicable to 2b, but given the mediating influence of first call resolution led to its indirect acceptance. For a visual check of this positive and indirect significance of the mediating effects of first call resolutions please see Table 5.22 for your perusal. This findings is not surprising at all, because there are valid literatures that have clearly shows that first call resolution is the contact center measurement variable that matters most, particularly with its mediating capacity between call center operational processes and customer satisfactions (Levin, 2007a&b; SQM, 2007). Part of their arguments is that FCR has the capability to increase call center opportunities in improving both the employee and caller satisfactions. For SQM (2007), the efficiency of CRM system implementations in call centers can best be determined through first call resolutions and caller satisfactions.

Very important is that the execution of industry best practices through the people, type of processes implemented and the technology enablers can best be measured through first call resolutions (SQM, 2007; Feinberg et al., 2002). The

result in this study is another major breakthrough on the importance of first call resolutions, particularly its mediating impact on CRM applications that this study has conceptualized and empirically established for the first time within the extant literatures. Consequently, hypothesis 2c is indirectly accepted based on the mediating impact of first call resolution as depicted in Table 5.22.

6.3.3 Effects of Knowledge Management on First Call Resolution, Perceived Service Quality and Caller Satisfaction

As theoretically argued in chapters two and three that Knowledge about key customers in a contact centers is very important for a successful CRM implementations (Rajshekhar et al., 2006), this is because availability of reliable knowledge will serve as a master plan upon which the desired learning relationship with key customers can be developed (Nguyen et al., 2007). And if properly applied, it will avails the call centers the opportunity to a successful establishment of a stronger competitive strength in the market through first call resolutions, perceived service quality and customer satisfaction. It is premised on these arguments that this study conceptualized and tested hypothesis 3a: H_{3a} : Knowledge management of the customer contact center is positively related to First Call Resolution. The result from the hypothesis testing shows a positive and significant impact of knowledge management on first call resolutions (standardized estimate 0.57, P, 0.002), further validating the extant literatures that have suggested that there exist a positive relationship between knowledge learning and call centers ability to resolve callers' issues in their first call (Whiting

and Donthu, 2009; Dean, 2007; Sin et al., 2005; Feinberg et al., 2002). This result is notably the first empirical research that has conceptualized and statistically validates the suggested positive relationship between knowledge management ability of a call center and their capability to resolve customers' issues in first call.

This outcome shows that the success or failure of relationship marketing activities in a call centers heavily depends on the company's ability to collect and analysis valuable customer information that could be used for developing and establishing individual customers' highly personalized product/services. The hypothesis testing results of the impact of knowledge management on first call resolution has also empirically established the arguments by Kode et al (2001) which states that the current global marketing problems are as a result of information handling issues and problems. This research has also shown that knowledge management is a major dimension in CRM application. Very important issue to note is that the current confusion between many practitioners and theorist have led to the difference between ICT programs and knowledge management of CRM systems, resulting into commitment of high investments on ICT projects and programs by several companies and these have resulted in a marginal results.

With this finding, both the academics and researchers can further understand that call centers ability to acquire, analysis and utilize reliable customer information will efficiently assist them in resolving callers issues on first call.

However, it is very important to clarify in this research findings that call centers should not in any way confused information with knowledge. For any call center to be referred to as possessing Knowledge, its available customer information must have been analyzed and effectively utilized in implementing appropriate strategic decisions and actions that will achieved the desired perceived service quality (Dean, 2007; Eid, 2007; Sin et al., 2005). It was based on the aforementioned facts that this study test hypothesis 3b, H_{3b} : Knowledge management of the customer contact center is positively related to perceived service quality. The result from this hypothesis testing revealed that knowledge management positively and significantly impact perceived service quality in call center operational processes (standardized estimate 0.55, P, 0.008).

This result is another major contribution from this research to the extant literatures on issues that determine perceived service quality of call center operational performance such as waiting time, average handling time, numbers of calls received, hold time etc. Very important to note is that Dean (2007) conceptualized and empirically established that there exist positive relationship between customer orientations of call centers and perceived service quality, with strong suggestions for coming researchers to further explore related CRM dimensions that would assist in achieving the desired relationship performance.

For this research, the strong impact of knowledge management on efficient decision making and performance has empirically been validated with the obtained result from hypothesis 3b.

Authors such as Acedo et al (2006) and, Meso & Smith (2000), have all argued that call center decision making processes involve three broad stages that run concurrently in the company: namely, Customer information acquisition, customer information sharing and customer information utilization. Therefore, collecting and creating insights, skills, and relationships are all termed “knowledge acquisition”, and wherever these knowledge been disseminated and shared among the different strategic business unit in the call center is termed “knowledge sharing” and lastly whenever there are integration of learning, customer’s insights and experiential knowledge that are put together in support of effective decision making processes in the organization is called “knowledge utilization”.

This research has empirically proof that call center’s ability in acquiring, sharing and utilizing relevant customer information would positively and significant impact its operational performances such as average handling time, waiting time, average holding time, numbers of calls push to interactive voice response, numbers of ACD calls received etc. To determine the overall impact of call center knowledge management capability on organization performance, this study has tested hypothesis 3c, H_{3c} : Knowledge management of the customer contact

center is positively related to caller satisfaction. As revealed from the hypothesis testing results, knowledge management within the call centers is positively related to caller satisfactions, but not statistically significant within the 0.05 confidence level (standardized estimate 0.15, P, 0.547). This hypothesis could have been rejected, but based on the positive and significant indirect relationships it has with first call resolution and caller satisfaction as depicted in Table 5.22, led to the acceptance of hypothesis 3c. This result practically indicates that call center's ability to acquire, share and utilized relevant information about the customer will not significantly impact caller satisfaction without resolving their issues in first call. This finding is very much in line with the findings in Levin (2007a) and SQM (2007) that empirically argued that caller satisfaction will drop at an average of 15% for all the callback that a customer makes to any contact center. In that same SQM's finding, it was estimated that for every 1% improvement that any contact center achieves in FCR, they will get a 1% improvement in their caller satisfaction (Levin, 2007a). This research has further confirmed that the efficiency of knowledge management application in call centers significantly depend on its ability to resolve customers' issues in their first call.

6.3.4 Effects of Technology Based CRM Organization on First Call Resolution, Perceived Service Quality and Caller Satisfaction

As theoretically argued in the extant literatures that the impact of Technology on CRM projects center more on its capability in collecting, storing, analyzing, and

sharing both current and potential customers' information in ways that have greatly enhance employees' ability in responding to the needs and request of the individual customers and therefore leading to better ways of attracting and retaining customers (David and Wendy., 2009; Kyootai and Kailas., 2007; Nguyen et al, 2007; Sin, et al., 2005). Based on existing theories in the extant literatures, and particularly those literatures that have specifically established positive relationship between technology based CRM and customer satisfaction (Sin et al., 2005; Yim et al., 2005), this study has tested hypothesis 4a, H_{4a} : Technology based CRM of the customer contact center is positively related to first call resolutions. The result from testing this hypothesis indicated that technology based CRM is negative and not significantly related to first call resolutions within the call center industry (standardized estimate -0.01, P, 0.933). The outcome from this hypothesis testing is not strange because of the antecedents of first call resolution as a secondary effect that requires direct contact between the callers and the company's customer representative officers. Customers specifically called the company to make an enquiry, complain or purchase a product that cannot be personally done via self servicing on the internet.

As noted that majority of the arguments in favor of technology applications on first call resolutions in call centers are primitively based on online self servicing, generally ignoring that first call resolutions is based on callers' expectations on resolving its issues on the first call, mostly via telephone conversations (Feinberg

et al., 2000). But very important to mention here is the empirical arguments from SQM (2007) and Feinberg et al (2000) that CRM technology applications in call centers are efficient means of creating speedy and convenient service to the customers, but achieving first call resolutions depends on many other factors such as customer requirements, organizational policies etc. Meanwhile, the result from this hypothesis has shown that technology applications does not have anything to do with resolving callers issues in first call, rather technology only served as an enabler.

To validate the extant arguments that technologies has assisted in improving call centers' promises on customer value analysis through mass customization via CRM integrated approaches, such as web enabled approach, automation of marketing and customer support processes, customer information systems, etc (McNally, 2007; Dean, 2007; Yim et al., 2005). This research has empirically tested hypothesis 4b, H_{4b} : Technology based CRM of the customer contact center is positively related to perceived service quality. Result from testing hypothesis 4b indicated that technology based CRM is positive and significantly related to perceived service quality in call centers (standardized estimate 0.54, P , 0.000). This result is very consistent with both the long standing and current literatures that have all argued that technology implementations in call centers will efficiently assist in achieving perceived service quality (Yueh et al., 2010; Eid, 2007; McNally, 2007; Nguyen et al., 2007; Sin et al., 2005; Yim et al., 2005; Feinberg et al., 2000).

Importantly, given the fact that call center perceived service quality is designed around operational variables such as average handling time, calls per minutes, total numbers of ACD calls received, average hold time, waiting time etc, its efficiencies significantly depend on the availability of modern technologies to effectively perform the tasks (Dean, 2007; 2002). However, the finding from the hypothesis testing in this research has further confirm that the advent of CRM has assisted the establishment of information strategies which encompasses computer and telephony technologies in building and retaining long term relationships, by leveraging the existing technology and strategically linking technology deployment to alternative targeted strategic business units. It is worth mentioning here that this research findings have empirically confirmed that technology invention in relationship management has to a great level assisted call center employees in all touch points to serve customers better, and without technology, many customer centric programs would be impossible.

Similarly many existing literatures have argued in support of the positive impact that the initiation, development and implementations of CRM technology within an organization has on the long-term customer relationships, particularly caller satisfactions (McNally, 2007; Yim et al., 2005; Ravipa and Mark, 2004; Fox and Stead, 2001; Berry, 1995). A critical analysis of these arguments as provided in chapters 2 and 3 has led into testing hypothesis 4c, H_{4b} : Technology based CRM of the customer contact center is positively related to caller satisfaction. As

obtained in the hypothesis testing results, technology based CRM is positive and significantly related to caller satisfactions within the contact center industry (standardized estimate 0.34, P, 0.046). This result indicate that the provision of technology related equipments by call centers will greatly impact callers ability in efficiently reaching the company at any time with little or no cost and finally achieving increasing their satisfactions with the company. Much of these could be seen in online banking, toll free lines, online self service facilities, etc that have all made life easy to the consumers (Sin et al., 2005).

Notably, the findings in this study has identified that it is widely possible for researchers to determine if an organization has in place CRM technology or not, but measuring the effectiveness of its utilization in terms of user acceptance, and the desired operational performance have since been neglected and this has been confirmed as very vital to the implementing firm (Ravipa and Mark, 2004). For this current study, the findings has empirically shown that call center customers satisfactions can significant be improved through the implementations of user friendly CRM technologies that can help sponge callers interest.

A further interpretation of the result in hypothesis 4c is that, call center interactions have shown that independent of customer orientations, technology based CRM is providing a good platform through which call centers can collect and effectively communicate relevant information about their goods or services between the company and customers, thus assisting to build long term trust between the duo.

McNally (2007) argued that technology based CRM applications have been helping call centers in collecting customer data and information from multiple sources and subsequently used in providing a consumable view of customers' information for necessary decision making processes. The outcome of this hypothesis have empirically shown that both the CRM system developers, implementing call centers and the consuming public should practically believe that CRM technology enablers are efficient means of improving their mutual relationships.

6.3.5 Effect of First Call Resolution on Caller Satisfaction

First call resolution (FCR) has been theoretically defined as the percentage of the calls that does not requires any further contacts or callbacks to address the same customer's reason for previously calling (Levin, 2007a; SQM, 2007; Feinberg et al., 2002;2000). First call resolutions as been practically (SQM, 2007) and theoretically (Levin, 2007a&b; Feinberg et al., 2002) classified as the best contact center variable that is having the biggest impact on caller satisfactions. Based on these and many other arguments in support of FCR, this study has tested hypothesis 5a to determine the impact of FCR on caller satisfactions. H_{5a} : First call resolution of the customer contact center is positively related to caller satisfaction.

This hypothesis testing results reveals that first call resolutions is positive and significantly impact caller satisfactions in call centers (standardized estimate 0.24, P, 0.016). Indicating that the higher the call centers are able to solve customers' issues in the first call, the better the customers will be satisfied with the company. The outcome of this hypothesis has empirically substantiate the arguments of Feinberg et al (2002&2000) that first call resolution is a major determinant of caller satisfaction in call centers. Although Feinberg et al (2002) argued that first call resolution marginally explain the variance in caller satisfactions ($R^2=0.14$), because caller satisfactions is a multi-dimensional constructs that goes beyond the operational limits of call centers.

For Levin (2007a), resolving reasons for calling does not technically say that the customer is satisfied. For example, a customer called to check with the company on the likely chance of changing a damaged product that was recently purchased, but to its surprise the customer service representative had to inform him that the company policy does not allow the replacement of a damaged product after one week of purchase, that the customer may check the warranty for details. Under this conduction, the customer will accept not to call back but he/she will never be satisfied. Theoretically, first call resolutions is a major determinant of caller satisfaction within the call center operational processes (Feinberg et al., 2000), beyond this scope are issues of organizational policies, advertising, product quality, etc that falls outside the operational control of call center staffs. Also in support of FCR arguments are that it ought to be defined

from the customer perspectives that any attempt by call centers to calculate such will amount to an incorrect estimates (Stephen and Michael, 2008; Timothy et al, 2006).

On a final note, this study is notably the first research that has empirically validates the mediating impacts of first call resolutions on call center's performances. This research has also clarify that CRM applications in call centers moderately explained the variance in first call resolution ($R^2 = 29\%$), indicating that there are other things that determine the resolutions of callers' issues outside the implementations of CRM applications.

6.3.6 Effect of Perceived Service Quality on Caller Satisfactions

Service quality has been defined as the perception of judgments about the superiority of a service rendered by an organization (Cronin and Taylor, 1994; 1992; Parasuraman et al., 1988), but till now the exact nature of this attitude or perception has not been globally agreed (Dean, 2009; Mohr, 1998). Many authors have also suggested that perceived service quality originates from a comparison of different individual expectations with different company's performance perceptions or disconfirmation of expectations.

Within the contact center industry, perceived service quality has been defined as the customers' overall assessments of the superiority of a firms' service with

respect to its service interactions and the subsequent outcomes (Dean, 2007; Cronin and Taylor, 1994; 1992). Based on the established positive relationship between service quality and customer satisfactions, this study has tested hypothesis 6a, H_{6a} : Perceived service quality of the customer contact center is positively related to caller satisfaction. The result from this hypothesis testing revealed that perceived service quality is negative and insignificantly related to call satisfactions (standardized estimate -0.11, P, 0.533). This result is contrary to the hypothesized positive relationship, but strongly aligned with the findings in Feinberg et al (2002; 2000) and Roland and Werner (2005) where they have empirically found that call center operational variables and quality orientation programs with the exception of FCR has no significant impact on caller satisfactions.

This study did not hypothesized the negative relationship in Feinberg et al (2002; 2000) and Roland and Werner (2005) because of a recent studies by Dean (2007) that empirically found that perceived service quality is positively related to caller satisfactions. But given the hypothesis testing result in this study, it clearly indicated that operational variables such as average handling time, average hold time, number of calls received etc are not good predictors of caller satisfactions. Rather these operational variables are mere cost and performance efficiency measurements in call centers. Very important to note from this research findings is that despite the negative relationship between perceived service quality and caller satisfactions, this study has practically availed the managers and

academics with the knowledge of what percentage of the variations in perceived service quality is explained by CRM applications in call centers ($R^2 = 0.54$). As observed, 54% of the variations in perceived service quality are explained by CRM applications, practically indicating that the cost and performance efficiency of call centers' operation is significantly dependent on successful CRM implementations. Although the combined effects of CRM dimensions, first call resolutions and perceived service quality weakly determine the variance in caller satisfactions ($R^2 = 0.14$) due to call centers' limitations on those multi-dimensional constructs that determines caller satisfactions (Feinberg et al., 2002; 2000).

6.3.7 Mediating Effects of First Call Resolution and Perceived Service Quality

Based on evidence from available literatures (Dean, 2007; Roland and Werner, 2005; Gummesson, 2004; Feinberg et al., 2002; 2000; Cronin and Taylor, 1994; 1992), with practical suggestions from managers at the initial exploratory study that was conducted in this research, this study has hypothesized two potential mediators. First call resolution (FCR) and perceived service quality (PSQ) were theoretically conceptualized and hypothesized as potential mediators of the relationships between CRM dimensions and caller satisfactions. However, the results of the hypotheses testing 5b,c,d&e and 6b,c,d&e as obtained in table 5.21 shows that out of these 8 hypothesized mediating relationships, only hypotheses 5c&d, **H_{5c}**: First call resolution of the customer contact center positively mediates

CRM organization and caller satisfaction and **H_{5d}**: First call resolution of the customer contact center positively mediates knowledge management and caller satisfaction were positive and significantly related. Perceived service quality is not mediating given its negative relationships to caller satisfactions.

The hypotheses testing results of the mediating relationships have empirically shown that the presence of perceived service quality within the call centers does not have any significant impacts between CRM implementations and caller satisfactions. Although these results is contrary to the hypothesized relationships, but it is consistent with the view of Yueh et al (2010), Roland and Werner (2005) and Feinberg et al (2000) that operational variables and quality management related policies will negatively affect caller satisfactions. Their arguments are based on their empirical findings as it thus relates to this current study that quality programs are negative and insignificantly related to caller satisfactions. Although Dean (2007) empirically shown that perceived service quality of the contact centers positively mediates the link between the customer orientation and caller satisfactions. The findings in this study has further confirm the view of Feinberg et al (2000) that quality related operational variables are mere efficiency measurement through which call centers can reduce cost and improve their employee operational performances.

Given the results from the mediating hypotheses testing, first call resolutions has strategically emerged as a good mediator in the relationships between organizing a call center around CRM, knowledge management techniques and caller

satisfactions. It thus practically indicates that the impact of CRM organization and knowledge management could only be significantly felt on caller satisfactions by resolving customers' issues on their first call. Despite the inconsistency in the hypothesized mediating relationships, this study will like to empirically argue that the achievements of first call resolution ($R^2 = 29\%$) and perceived service quality ($R^2 = 54\%$) does significantly depend on effective implementations of CRM dimensions.

6.4 Research Contributions and Implications

As evident in the data analysis results in chapter 5, this study has provided some contributions to theory, methodology and practice.

6.4.1 Theoretical Contributions

The development, conceptualization and empirical testing of CRM dimensions on call center performance model, with a strong establishment of the linkages between information technology and relationship marketing are a major theoretical contribution of this research. This CRM to call center performance model has empirically established the theoretical linkage that exist between (a) CRM dimensions and caller satisfactions, (b) CRM dimensions, first call resolutions and perceived service quality, (c) first call resolutions and caller satisfactions, and (d) perceived service quality and caller satisfactions.

Importantly, seven of these research findings have contributed to theory building both in relationships marketing and information technology domains. The first contribution is that knowledge management has been established as positive and significantly affecting call center's ability in resolving customers' issues in first call. This result has empirically validated the suggestion by Eid (2007) that any research that can potentially link knowledge learning to customer service capability in resolving customer's issues will be covering a wide and significant gap. This current study has expands beyond those existing findings (Yueh et al., 2010; Eid, 2007; Sin, et al., 2005; Yim et al., 2005) by clearly demonstrating that efficient management of customer's knowledge learning is a major input to achieving resolutions in customer's first call and subsequently achieving their satisfactions. In addition to this finding, the current study has also provided the needed empirical support to McNally (2007) qualitative findings that customer service representative performance on customers' needs is greatly dependent on their knowledge capability and CRM software applications.

This present study has shown that the applications of knowledge management in call centers significantly play a major role in resolving customers' issues and getting them. This empirical findings has theoretically supported the growing consensus in relationship marketing theory that knowledge management is a unique competitive advantage through which companies that have the capability and ability in tapping, analyzing, disseminating and efficiently utilizing customers

and competitors' information can attain its tactical and strategic goals (Yueh et al., 2010; Aihie and Bennani, 2007; Acedo et al., 2006; Sin et al., 2005; Adam and Michael, 2005; Anton, 2000; Berry, 1995; Barney, 1991).

The second theoretical contribution is that knowledge management is positively related and significantly influences perceived service quality in call centers. This result empirically support the view of Dean (2007) that call center's knowledge ability will positively influence employee operational performances. Very important in this finding is that this study is the first observed empirical research that has empirically established the theoretical link between knowledge management and perceived service quality in the service industry. And more importantly, this study has shown that knowledge management is a key input through which call centers can reduce their cost of operation and improve productivity. This result theoretically captured the observed gap by Feinberg et al (2002) which states that strategic applications of customer knowledge in call centers have being long neglected and still stands as a major inputs which they could achieve their desire productivity. Observably, this study believe that a major reason for this long neglect of the impact of knowledge management on perceived service quality might be connected to lack of unilateral consensus of what should actually constitute perceived service quality. To avert this phenomenon, this study has adopted the measurement items as empirically used in Dean (2007) in measuring the impact of customer orientation on call center perceived service quality and customer satisfactions.

Thirdly, the research findings show that technology based CRM is positively related and significantly influences perceived service quality. This finding has theoretically contributed to the qualitative study of McNally (2007) that conceptualized a positive influence of call center's CRM software use on employee job performance. It does shows that call centers' capability in implementing latest CRM technologies that are user friendly will go a long way in improving the efficiency of customer service representatives in attending to customers and company clients. It also does mean that the work load on customer service representatives will be reduced, specifically with the self service opportunities that the customers will be availed.

Very important grounded evidence in this finding is that, till the time of writing this report there hasn't been any identified study that has empirically validated the suggested positive impact of CRM technology on perceived service quality (Dean, 2007; Eid, 2007; McNally, 2007; Sin et la., 2005). This study has theoretically filled this gap by empirically established that technology based CRM is positively related and significantly influences perceived service quality. This result has empirically provided the required evidence that information technology management practices is a unique component in successful implementations of CRM applications within the inbound units of call centers (Yim et al., 2005). In addition to this finding is that while many research has argued in favor of CRM technology implementations in service industry (Aihie and Az-Eddine, 2007;

Coltman, 2007; Nguyen et al 2007; Roland and Werner, 2005; Ravipa and Mark, 2004), very few studies have generally focused in understanding and measuring the impacts of technology based CRM on employee performance (Eid, 2007; McNally, 2007; Yim et al., 2005). To achieve accuracy in the data analysis, this study has adopted the technology based CRM measurement scale as conceptualized by Sin et al (2005) and Yim et al (2005) within the service industry and in particular the outbound unit of call centers. Arguably, this measurement scales have been suggested as efficient means of determining the impacts of technology based CRM on organization's performances (Sin et al., 2005; Yim et al., 2005).

Fourth, this research has theoretically contributed to the notion that technology application influences organizational performances. This could be ascertained through the research findings where technology based CRM is positively related and significantly influences caller satisfactions. This finding is not surprising because it is consistent with the findings in Sin et al (2005) and Yim et al (2005) that both conceptualized CRM dimensions and found that technology based CRM is positive and significantly related to customer satisfactions. A major theoretical contribution from this study is that, the extant literature reviews has revealed that this is the first empirical research that has established positive and significant relationship between technology application and customer satisfactions within the inbound units of call centers. It has empirically provided the required evidence that is needed to justify these extant relationships within the inbound call centers. It

has equally gone beyond the suggestion of McNally (2007) on the need to measure the impact of CRM software use on employee performance by equally determining its impact on inbound callers' satisfactions. The result has further established that the inherent opportunities in technology based CRM such as online self services, emails; fax, sms, phones etc have significant impact in influencing customers' satisfactions.

Also very important to emphasis is that the extant literatures on technology acceptance have been making use of technology adoption model (TAM), whereas the significant weakness of this model is that it is mainly used in explaining and analyzing technology usage behavior (Venkatesh and Davis, 2000), but not in determining the impact of technology on corporate performance. This study has further provided the required empirical support for the reasons why service practitioners should strategically determine the impact of their technology application on their corporate performances.

Fifth, the result in this study has contributed to theory by further confirming the empirical findings of Feinberg et al (2000) that first call resolutions (FCR) positively influence caller satisfactions. This has further been confirmed from the result obtained in testing hypothesis 5a which indicates that first call resolutions is positively related and significantly influences caller satisfactions. Similar to the theoretical findings of Feinberg et al (2000) are few practical findings from practitioners such as SQM (2007) and Levin (2007a) that have all found that first

call resolutions positively influence caller satisfactions in call center industry. It is also evident in this study that the better a call center is able to resolve customer's issues on first call, the higher their opportunities in increasing customer satisfactions. As empirically argued by Levin (2007a), caller satisfaction will drop at an average of 15% for all the callback that a customer makes to any call center. Similarly, SQM (2007) estimated that for every 1% improvement that any contact center achieves in FCR, they will get a 1% improvement in their caller satisfaction.

For the theoretical contribution 6th and 7th, the results obtained in this study have empirically established that first call resolutions positively mediates the relationships between CRM organization, knowledge management and caller satisfactions. This could be seen in table 5.22 where hypotheses 5c and 5d have empirically depict a positive and significant mediating impact of first call resolutions in the relationships between CRM organization, knowledge management and caller satisfactions. A strong theoretical link in this result is that CRM organization and knowledge management has been theoretically established as a good antecedent of first call resolution, while caller satisfactions is the consequence of resolving callers' issues on first call. Evidence from this research findings have shown that without the achievement of first call resolutions, organizing a firm around CRM and knowledge learning practices will not have any significant impact on callers.

Finally, as evident in the extant literatures that FCR is a major determinant of caller satisfaction within the contact centers (Stephen and Michael, 2008; Levin, 2007a&b; Feinberg et al 2002; 2000) and that FCR is an outcome of the present or previous service encounters (SQM, 2007; 2005; Feinberg et al 2002; 2000). Theoretically, this current study has contributed by establishing the mediating impacts of FCR in call center performance and by confirming that the contact center customers can only evaluate (issues resolved or not) with contact center service delivery only after they could interpret (perceive) the services.

6.4.2 Methodological Contributions

Apart from the aforementioned theoretical contributions, this study has significantly contributed to methodological perspective. For CRM dimensions, this study has adopted the measurement scales that was conceptualized and empirically tested by Sin et al (2005) and Yim et al (2005) in measuring the impacts of CRM applications on organization's performance. Measurement scales for perceived service quality was adopted from Dean (2007) as conceptualized and tested to determine its mediating impact on the relationship between customer orientations and organization's performance. Although the initial measurement scales for perceived quality was conceptualized and tested by Fornell et al (1996), later re-modified by Mohr (1998) and further reduced by Dean (2007) to suite the operational processes of call center industry. Following this reduction, Dean (2007) proposed that future researchers should try to cross-validate this new revised perceived service quality measurement scales in other

countries to establish its generalizability. As a response to Dean (2007) suggestions, this current study has contributed to methodology by empirically establishing the reliability and validity of the new revised measurement scales for perceived service quality within the contact center industry in Malaysia.

This research has methodologically contributed in the development of 2 new measurement scales as suggested by practitioners at the initial interview and also consistent with options used by Yim et al (2005) and Feinberg et al (2002; 2000) for measuring business performance variables such as first call resolution and caller satisfaction. This was measured by asking the call center managers the percentage of their 2009 callers surveyed that reported top box “satisfaction” and “first call resolution” on a seven point likert scale ranging from 1 = below 40% to 7 = above 90%. The word “top box” is an industry term that was used in the survey as the highest level of caller satisfactions and first calls resolution that the selected companies have measured in their caller satisfactions and first call resolution surveys.

Traditionally this study has also methodologically established the robustness that is inherent in using multivariate analysis techniques such as structural equation modeling in analyzing one item observed variable as adopted in measuring first call resolutions and caller satisfactions (Bryrne, 2010; Hair et al., 2010).

6.4.3 Managerial Implications

As evident in the extant literatures and industry reports that CRM implementations and call center performance are at the risk of increase in employee attrition rates and customer dissatisfactions, a major issue that has created serious concerns for call center management and CRM practitioners (Call Center.net, 2008; Dean, 2007; Eid, 2007; Levin, 2007a&b; McNally, 2007; SQM, 2007; Roland and Werner, 2005; Gummesson, 2004; Feinberg et al., 2002&2000).

This empirical study has provided the long waiting evidence that CRM applications within the contact center industry will significantly impact call center performances. The empirical findings in this research has clearly provided an effective means through which call center managers can develop, implement, utilize and evaluate CRM applications in their companies. This research practically suggest that managers have to provide enough time and training to their customer service representative to understand the impact of using CRM applications in adding value to their operational performances and meeting customers requirements at profit. For those call centers that are currently considering implementing sophisticated CRM technology, it would be efficient and prudent if they could first determine their customer characteristics and human resource capability. Observably, this research believes that the involvement of information technology experts in call center CRM implementations is beneficial, but it would be far better if call center managers can provide customer oriented training to these IT officers before deciding on what best CRM technology to be

implemented. Similarly, the IT managers ought to practically provide a clear communication and visual demonstrations of the intended IT strategy to be implemented. Doing this will avail call center operation managers on the likely impact it could have on their current and potential customers.

Managers should equally know that organizing their strategic business units around CRM applications and other spending on customer knowledge learning will have no significant direct impact on customer satisfaction; their major efforts should be more concentrated in using these tools to resolve customers' issues in their first call so as to attain their satisfactions. Practical evidence on these could be seen in SQM (2007) and Levin (2007a&b). Managers' over concentrations on operational variables as a measure of efficiency should be relooked into, this is because this research as provided the required empirical evidence to substantiate the arguments in the extant literatures that operational variables are mere instrument of reducing cost and determining employees' performance, but has no impact on caller satisfactions.

Finally, this study practically believes that call centers that are looking to strategically implement technology based CRM should therefore be considering actions that could assist in achieving the desired balanced portfolio. This will result in a win-win situation that can guarantee company's resources and continuity, employee commitment and customer satisfactions.

6.5 Limitations of the Research Study

There are some limitations in this study as it applies to any other studies. The first limitation is that this study has empirically assessed call centers/Contact center success through caller satisfaction (an observed variable through their 2009 customer survey). Notably contact center successes are a broader construct which includes caller loyalty, cost minimizations (profits, labor turnovers), employee satisfaction etc. Consequently this study cannot generalize its findings in all the constructs of contact center successes and across countries.

Also this present study has primarily focused on snapshots within the shortest timeframe to test the hypothesized model that can explain the impact of CRM applications on call center's performances and provide relevant basic principles. But given the continuous evolving process of CRM applications, the current identified variables and measurement items, such as customer orientation, CRM organization, knowledge management, technology based CRM, first call resolutions, perceived service quality and customer satisfactions could change over time and also varies across different firms.

A potential challenge in this study is the methodological limitation that was experienced given the small sample size of 168 that was collected for the multivariate analysis. As theoretically argued by Byrne (2010) and Hair et al (2010), that making use of small sample size in multivariate analysis could

potentially lead researchers into committing a Type II error, or more likely the empirical statistical tests that is employed may eventually failed in detecting the hypothesized significant relationships. This study is also limited in scope given that the conceptualized CRM measurement items did not integrate or differentiate the functionality of the actual technology based CRM that is adopted. It thus shows that scope of this present study primarily avails useful practical and theoretical insights; meanwhile the incorporations of additional factors or measurement instruments are left for further research.

6.6 Directions for Further Research

As evident in the extant literatures, combining marketing and information technology literatures and practical issues have provided a lot of opportunities to this research and its empirical findings have opened a number of theoretical avenues through which further investigation could be achieved. Although the research findings have shown that perceived service quality showed no positive or significant mediating effect on the relationships between CRM dimensions and caller satisfactions. This research believes there is need to further investigate this finding given the mixed opinion of researchers on the impacts of perceived service quality within the call center industry (Dean, 2007; Roland and Werner, 2005; Feinberg et al., 2002).

Findings from the initial exploratory interview and the main survey data have established the mediating impact of first call resolutions on the relationships

between CRM dimensions and caller satisfactions. This is because call center is a company first touch point with major task being performed by the customer service representatives. Therefore, very important is the need for a research on additional variable such as caller's inputs (education, culture, age and buying behavior) that might directly or indirectly influence customer's first call resolutions and satisfactions. Shareholders' factors are very significant in the acquisition and management of technology, processes and people, whether in-source, outsource or co-source. There is need for research that will assist in structuring the acquisition of technology, process and people based on the existing factors that affects call center management.

People's attrition is a very concerned issue in the modern day CRM customer contact center. There is need for a research that will guide on restructuring the recruitment process right from job description, job analysis, behavioral interview, employee orientation, job placement and follow-up trainings. Fourth, as observed by many researchers that lack of detailed knowledge of customer's feelings on specific technology before its implementation have been resulting in some companies' failure; complex technologies resulting into dissatisfy customers. In view of this, there is need for an immediate research on how to incorporate "Technology Readiness Index (TRI)" propounded by Parasuraman (2000) into the operations of customer contact center industry.

Finally, there is need for a research to look into the impact of the multifactor processes (speed of response, length of call, average hold time, calls per period, wrap-up time) on agent performances. Are they positive influencer on agent's performances to achieving customer satisfaction? And if otherwise, what specific process input that positively impact agent's performance will be a very useful guide for contact center manager.

6.7 Conclusion

This research has empirically brought together numbers of distinct domains such as relationship marketing, information technology, and customer relationship management. Customer orientations, technology based CRM, knowledge management and CRM organizations were all empirically tested and found to be the antecedents of first call resolution and perceived service quality. While caller satisfactions are the consequence of first call resolutions. This study has developed one item observed variable based on call center survey in 2009 for measuring first call resolutions and caller satisfactions. In this empirical study, caller satisfaction is the dependent variables, while first call resolutions and perceived service quality are the mediating variables. The independent variable in this study consisted of customer orientations, technology based CRM, knowledge management and CRM organizations.

Data collection for this research began at the initial interview with sixteen executives that were selected from four firms in different sectors of Malaysia contact center industry (Telecommunications-equipments, Telecommunications-networks, Transportation, and Financial services). These executives were asked basic questions that assisted in exploring the implementations and outcomes of CRM projects within these sectors of the contact center industry as a strategic part of customer relationship marketing. After necessary modifications based on the findings from this initial one on one interview with call center managers, this research went further to collect main empirical data using both mail and online survey to collect information from the selected call center managers. These data were screened through principal component analysis and finally analyzed using AMOS. The research findings were interpreted based on the extant literatures, industry reports and the findings from the initial study.

The hypotheses testing results showed that the greater the knowledge management capability of call centers, the better call centers' ability to resolve customers' issue on first call and the greater the customers are satisfied. Similarly knowledge management is positive and significantly related to perceived service quality, meaning that how effective a company is in exploring knowledge learning, the greater its employees will be professionally equipped. As expected, technology based CRM is positive and significantly related to perceived service quality, an indication that the operational efficiency of call center is strongly dependent on CRM technology applications.

Technology based CRM is also positive and significantly related to caller satisfactions, a result which shows that technology applications such as online self service, 24 hours hotline, email services, fax and chatting have positive influence on customer satisfactions. More dynamic and interesting among the research findings is the mediating role of first call resolutions on CRM organizations and knowledge management. This is because the research findings indicates that first call resolutions positively mediate the relationships between CRM organizations, knowledge management and caller satisfactions. The result shows that no matter the extent to which call centers organize its strategic business units around CRM and knowledge applications, it must first achieve first call resolution before expecting any positive impact on caller satisfactions.

This study empirically concludes that the outcomes of this research have validated the objectives that are outline in chapter 1, which state thus:

To test a model that can explain the relationships between CRM dimensions and Caller Satisfaction within contact center industry.

The results as obtained through AMOS for the structural measurement analysis indicated that CRM dimensions directly and indirectly effect caller satisfactions.

To determine the relationships between CRM dimensions, First Call Resolution and Perceived Service Quality in the Contact Center Industry

The research findings empirically demonstrate that knowledge management and technology based CRM are positive and significantly related to first call resolutions and perceived service quality within the call centers.

To determine the relationships between First Call Resolution, Perceive Service Quality and Caller Satisfaction

The findings from the hypotheses testing in this study have theoretically and practically contributed to the extant literatures in relationship marketing and technology applications in service industry. The results have theoretically complemented the opinions in some literature that first call resolutions is an outcome of a current or past interactions with the customers and that it positively mediate the relationships between call center service delivery and caller satisfactions. The positive and significant mediating impact of first call resolution on the relationships between CRM organizations, knowledge management and caller satisfactions has a strong potential of improving the performance and success of CRM applications within the call center industry.

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APPENDIX

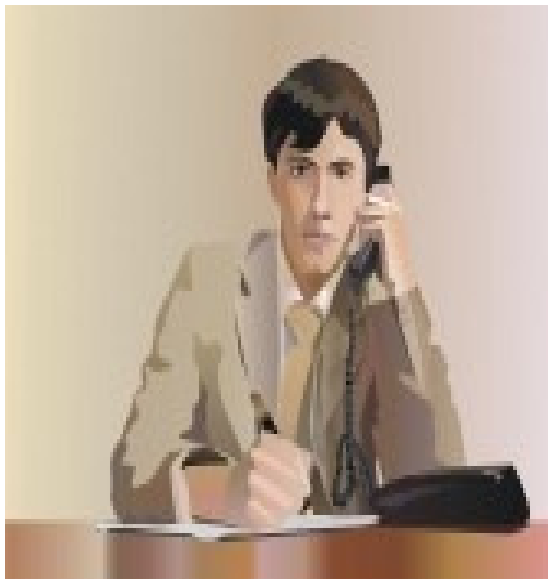
Appendix A: Questionnaire



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The impact of Customer Relationship Management on Caller Satisfactions in Contact Center Industry

A Malaysia Contact Center Industry-wide study
January, 2010



*Balancing Customer Satisfactions and
Marketing Strategies*

This research is being conducted in order to better understand the link between CRM applications and customer/caller satisfaction in the contact center industry. The result of this empirical study will be used to strengthen the current CRM applications and how it could positively impact customer satisfactions in the contact center industry. Please endeavor to answer all of the questions as accurately as you can. There is no right or wrong answers; it is your opinion that is important to this study. In case you wish to comment on any questions or give more explanations to your answers, please feel free to make use of the space in the margins. Note that all information provided will be efficiently utilized. For this current study, CRM is defined as any processes, people and technologies that are implemented by any organization to efficiently manage and handle their customers' contacts at profit. In this instance, these contacts can be through a series of different types of communications channels, including the phone calls, emails, online web chatting, and faxes that are all implemented under the concept of CRM applications.

Thank you for your assistance

*Aliyu Olayemi Abdullateef
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Part A: Background information about you and your organization

I am a PhD Research Candidate in Marketing at the College of Business University Utara Malaysia, am currently conducting a graduate research title: The impact of customer relationship management (CRM) on caller satisfaction in contact center industry, evidence from Malaysia. For ease of interpretations of the results the researcher will like to ask a few questions about you and your organization. Please endeavor to tick the appropriate box for each of the questions. Kindly note that **all information collected in this research is strictly confidential and strictly meant for academic purposes.**

Your genderMale ☐Female ☐**Industry Type**☐ Manufacturing☐ Wholesale☐ Services☐ Other**Your qualifications:**☐ No certification held☐ Primary school Certificate☐ School Certificate/SPM☐ Tertiary school certificate☐ Postgraduate Degrees**Your organization's annual gross revenue:**☐ Between RM100, 000 – RM900, 000☐ Between RM1M – RM9, 900 000M☐ RM10M and above**Your age:**☐ Between 18 and 35 years☐ Between 36 and 45 years☐ Between 46 and 55 years**Total number of employee:**☐ Below 100☐ 101- 500☐ 501 or more**Your title/position:**

Your years working experience:☐ Less than 5 years☐ Between 5 and 10 years☐ Between 10 and 20 years☐ Above 20 years☐ Over 55 years

Part B: Customer Relationship Management (CRM) applications

Instructions: Please answer all the questions by cycling one number that best represents your view based on the following scale:

- 1 - Strongly Disagree
- 2 – Moderately Disagree
- 3 – Slightly Disagree
- 4 – Neutral
- 5 – Slightly Agree
- 6 – Moderately Agree
- 7 – Strongly Agree

For any difficult terms, please kindly refer to the attached definition of terms at the end of this booklet.

Section A: Customer Orientation of your organization

No.	Statements	Scale						
A1.	Customer is the center of strategic planning in our organization	1	2	3	4	5	6	7
A2.	Our organization is committed to meeting customer's needs and expectations	1	2	3	4	5	6	7
A3.	There is an established framework for getting customers feedback in our organization	1	2	3	4	5	6	7
A4.	Different processes for tracking customer's expectation are implemented in our organization	1	2	3	4	5	6	7
A5.	Customer database are frequently updated in our organization	1	2	3	4	5	6	7
A6.	There is strong Management support and commitment in using customer Knowledge in decision making process of our organization	1	2	3	4	5	6	7
A7.	There is frequent dissemination of customer information throughout our organization	1	2	3	4	5	6	7
A8.	All service standards are based on consistent analysis of customers' needs in	1	2	3	4	5	6	7

	our organization							
A9.	Our competitive advantage is based on building and maintaining long-term customer Relationships	1	2	3	4	5	6	7
A10.	Our organization makes an effort to find out what our key customer needs	1	2	3	4	5	6	7

Section B: CRM Organization in your organization

No.	Statements	Scale						
B1	Customer centric performance standards are established and monitored at all customer touch-points in our organization	1	2	3	4	5	6	7
B2.	Our organization has the sales and marketing expertise and resources to succeed in CRM	1	2	3	4	5	6	7
B3.	Our employee training programs are designed to develop the skills required for acquiring and deepening customer relationships.	1	2	3	4	5	6	7
B4.	Our organization has established clear business goals related to customer acquisition, development, retention, and reactivation	1	2	3	4	5	6	7
B5.	Our organization commits time and resources in managing customer relationships	1	2	3	4	5	6	7
B6.	Employee performance is measured and rewarded based on meeting customer needs and on successfully serving the customer.	1	2	3	4	5	6	7
B7.	Our organizational structure is meticulously designed around our customers	1	2	3	4	5	6	7
B8.	All employees in my organization understand and share the common goal of building and maintaining customer relationships	1	2	3	4	5	6	7
B9.	CRM responsibilities of each employee are clearly defined, assigned and understood in our organization	1	2	3	4	5	6	7
B10.	Our top management team spends much time with key customers	1	2	3	4	5	6	7

Section C: Knowledge Management in your organization

No.	Statements	Scale						
C1.	My organization's employees are willing to help customers in a responsive manner.	1	2	3	4	5	6	7
C2.	My organization fully understands the needs of our key customers via knowledge leaning.	1	2	3	4	5	6	7
C3.	Customer can expect exactly when services will be performed in our organization	1	2	3	4	5	6	7
C4.	My organization provides channels to enable ongoing, two-way communication with our key customers and us.	1	2	3	4	5	6	7
C5.	Customers can expect prompt service from employees of my organization.	1	2	3	4	5	6	7
C6.	My organization shares customer information across all points of contact	1	2	3	4	5	6	7
C7.	New knowledge acquired at various touch-points of our organization is codified so that the new knowledge can be disseminated and shared easily amongst all staff	1	2	3	4	5	6	7
C8.	My organization believes that mining data intelligently is a source of competitive Advantage	1	2	3	4	5	6	7
C9.	Knowledge is shared to leverage the value of customer information in our organization	1	2	3	4	5	6	7
C10.	My organization has sound mechanisms for effective knowledge dissemination	1	2	3	4	5	6	7

Section D: Technology Based CRM in your organization

No.	Statements	Scale						
D1.	My organization has the right technical personnel to provide technical support for the utilization of computer technology in building customer relationships.	1	2	3	4	5	6	7
D2.	My organization has the right software to serve our customers.	1	2	3	4	5	6	7
D3.	My organization has the right hardware to serve our customers.	1	2	3	4	5	6	7
D4.	Individual customer information is available at every point of contact in our organization.	1	2	3	4	5	6	7

D5.	My organization maintains a comprehensive database of our customers.	1	2	3	4	5	6	7
D6.	Our computer technology can help create customized offerings to our customers	1	2	3	4	5	6	7
D7.	Our information systems are designed to give comprehensive data about all aspects of our customers, so that we can be responsive to them	1	2	3	4	5	6	7
D8.	IT facilitates the management of customer relationships in our organization	1	2	3	4	5	6	7
D9.	My organization has the technical expertise and resources to succeed in CRM	1	2	3	4	5	6	7
D10.	We have mechanisms to encode new knowledge about our customers into formal rules or policies that can be shared between organizational participants and organizational Subunits	1	2	3	4	5	6	7

Section E: First Call Resolution in your organization

No.	Statements	Scale						
		1	2	3	4	5	6	7
E1.	Based on your 2009 customer surveyed, how would you rate your organization in terms of callers that have satisfactory resolution on the first call	Below 40%	Between 40% to 49%	Between 50% to 59%	Between 60% to 69%	Between 70% to 79%	Between 80% to 89%	90% and above

Section F: Perceived Service Quality of your organization

No.	Statements	Scale						
F1.	My organization makes sure that customers doesn't wait too long in a queue for service	1	2	3	4	5	6	7
F2.	My organization customer service consultant are taking enough time to attend to customers and not rushing the customers	1	2	3	4	5	6	7
F3.	My organization customer service consultant are assisting the customers to	1	2	3	4	5	6	7

	define their problem or question them more specifically							
F4.	My organization customer service consultant are being able to solve different problems	1	2	3	4	5	6	7
F5.	My organization customer service consultant are explaining steps in the process to customers (or reasons for problems)	1	2	3	4	5	6	7
F6.	My organization customer service consultant are treating the customers with empathy	1	2	3	4	5	6	7
F7.	My organization customer service consultant are having the authority to solve customers' problem	1	2	3	4	5	6	7

Section G: Caller Satisfaction in your organization

No.	Statements	Scale						
		1	2	3	4	5	6	7
G1.	Based on your 2009 customer surveyed, how would you rate your organization in terms of callers that reported "top box" customer satisfaction rating	Below 40%	Between 40% to 49%	Between 50% to 59%	Between 60% to 69%	Between 70% to 79%	Between 80% to 89%	90% and above

Thank you for participating

Definition of Terms

Customer Orientation: Customer Orientation has been defined as the degree to which an organization emphasizes on meeting customer needs and expectations in order to establish long-term customer relationships and organization's profitability.

CRM Organization: CRM organization is the alignment of viable business strategies, customer information and technology on the existing organizational structures and cultures, with the primary aim of achieving long-term customer satisfaction and organizational profits.

Knowledge Management: Knowledge Management is a means with which companies capture, organize, manipulate, and share implicit and explicit data with both internal and external users.

Technology Based CRM: Technology Based CRM can be describe as any technology or systems that assist organizations in collecting, storing, analyzing, and sharing both current and potential customers' information in ways that have greatly enhance employees' ability in responding to the needs and request of the individual customers and thereby leading to better ways of attracting and retaining customers.

First Call Resolution: First Call Resolution is the percentage of the calls that does not requires any further contacts or callbacks to address the same customer's reason for previously calling the organization.

Perceived Service Quality: In the contact center industry, perceived service quality has been defined as the customers' overall assessments of the superiority of a firms' service with respect to its service interactions and the subsequent outcomes.

Employee Job Satisfaction: The term employee job satisfaction has been defined by most literatures as a pleasurable emotional state of the employees resulting from a series of valuations of his/her work.

Caller Satisfaction: Caller Satisfaction is a component of overall Customer satisfaction which could be describe as the psychological concept that captures the feelings of well-being and pleasure that results from customers' ability to obtain what they hopes for and expects in calling the customer service department of their marketers/service providers.

<https://spreadsheets.google.com/viewform?formkey=dHdFM1VMcEVadmIpWk1FcGNfRDZGN1E6MQ>

Appendix B: Test of Reliability (Cronbach Alpha)

Reliability – Customer Orientation (CO)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.864	.866	10

Reliability – CRM Organization (CRMO)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.881	.881	10

Reliability – Knowledge Management (KM)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.896	.897	10

Reliability – Technology Based CRM (TCRM)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.936	.936	10

Reliability – Perceive Service Quality (PSQ)
Reliability Statistics

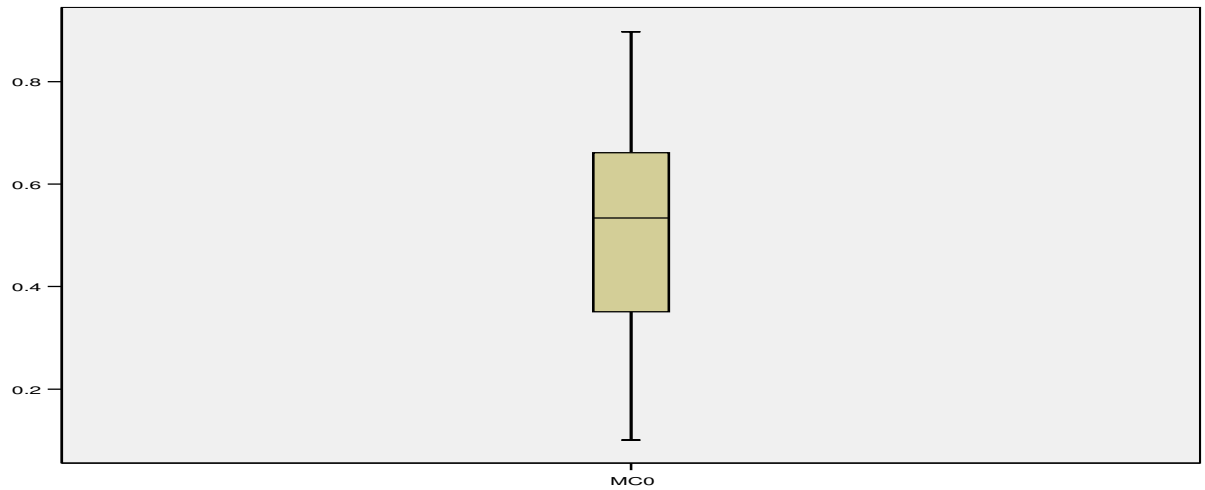
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.877	.877	7

Appendix C: Assessment of Normality before and after treatment

Customer Orientation Stem-and-Leaf Plot

Frequency	Stem &	Leaf
2.00	1 .	00
.00	1 .	
7.00	2 .	0123333
7.00	2 .	5677889
22.00	3 .	0012333333333333333333
7.00	3 .	6666678
6.00	4 .	000034
13.00	4 .	5667777788899
14.00	5 .	0112222233334
17.00	5 .	55566788888999999
12.00	6 .	001233333334
17.00	6 .	56666666666678999
5.00	7 .	03334
11.00	7 .	66666777788
6.00	8 .	000222
6.00	8 .	555599

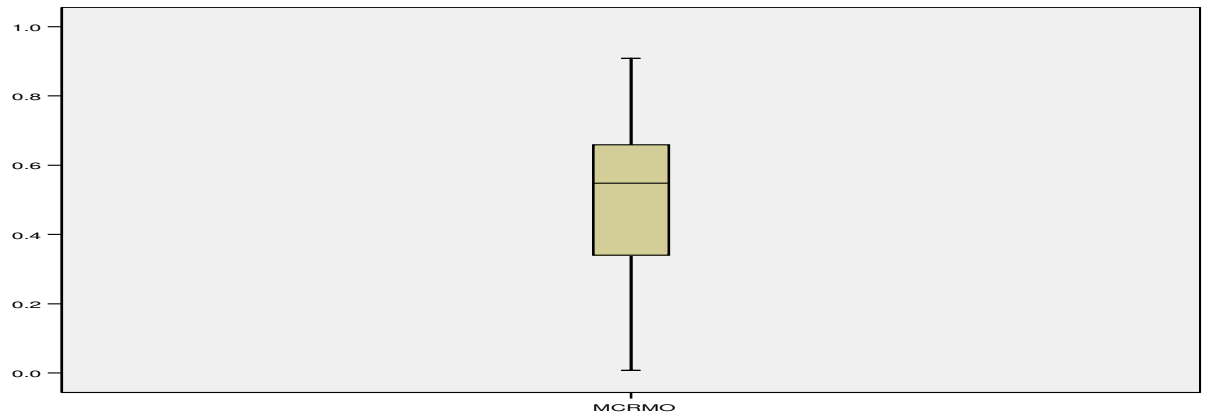
Stem width: .10
Each leaf: 1 case(s)



CRM Organiztion Stem-and-Leaf Plot

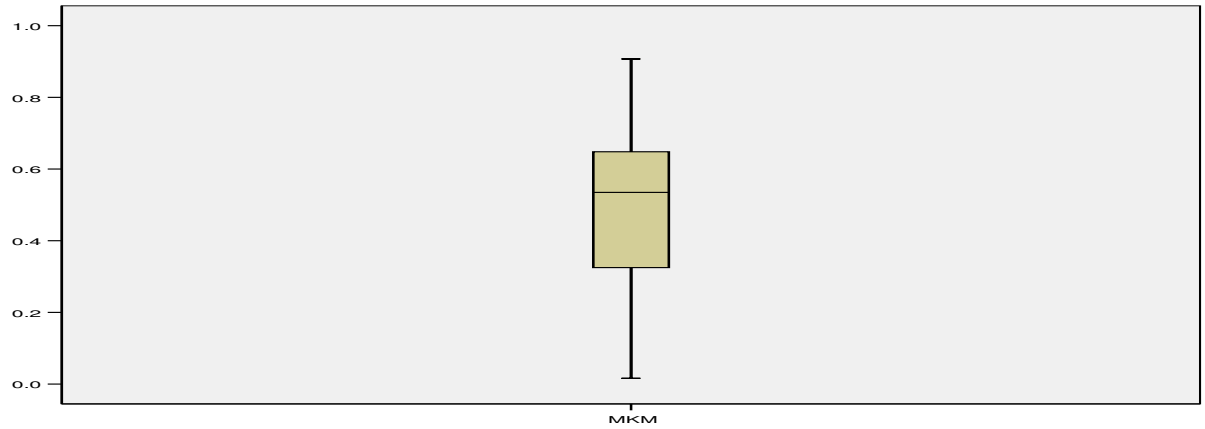
Frequency	Stem &	Leaf
2.00	0 .	00
1.00	0 .	6
1.00	1 .	4
2.00	1 .	69
2.00	2 .	04
5.00	2 .	55799
26.00	3 .	00000000000000000000123344
8.00	3 .	57777789
7.00	4 .	0123334
10.00	4 .	5577788889
12.00	5 .	001111122223
10.00	5 .	5677778889
16.00	6 .	0000011122222224
27.00	6 .	555555555555555555557778888
8.00	7 .	00112333
3.00	7 .	588
7.00	8 .	0013333
2.00	8 .	58
3.00	9 .	000

Stem width: .10
Each leaf: 1 case(s)



Knowledge Management Stem-and-Leaf Plot

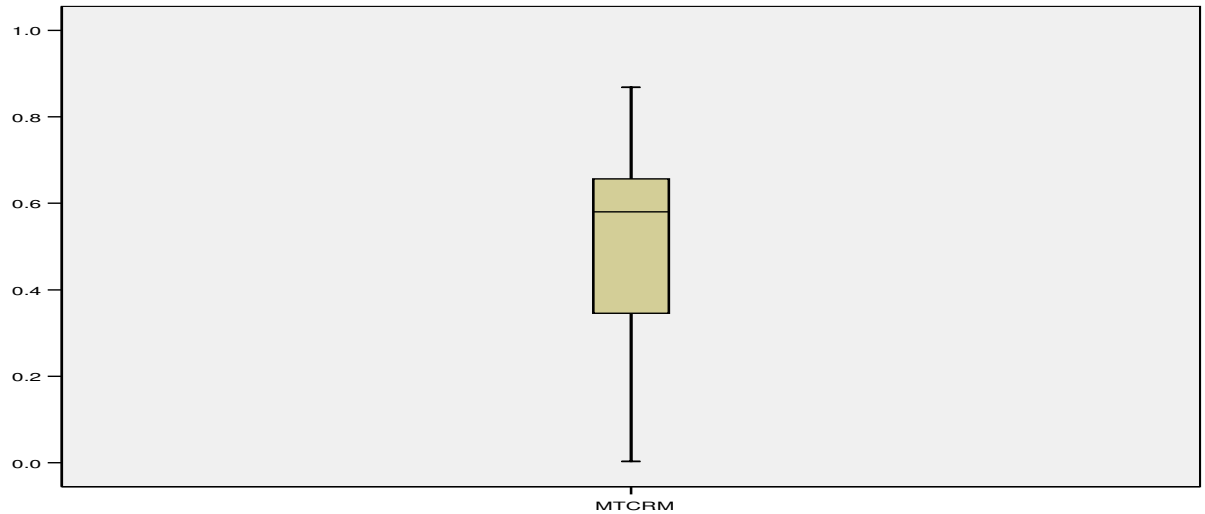
Frequency	Stem &	Leaf
2.00	0 .	11
1.00	0 .	8
1.00	1 .	0
.00	1 .	
5.00	2 .	03344
25.00	2 .	66688888888888888888999
7.00	3 .	2222244
17.00	3 .	5555567777789999
7.00	4 .	1223344
4.00	4 .	6778
10.00	5 .	0111223334
11.00	5 .	55677777789
30.00	6 .	001222233444444444444444444444
11.00	6 .	67777778999
7.00	7 .	2223444
5.00	7 .	77788
4.00	8 .	0223
3.00	8 .	558
2.00	9 .	00
Stem width:	.10	
Each leaf:	1 case(s)	



Technology Based CRM Stem-and-Leaf Plot

Frequency	Stem &	Leaf
3.00	0 .	003
3.00	0 .	589
2.00	1 .	02
6.00	1 .	667999
2.00	2 .	00
3.00	2 .	589
20.00	3 .	1122222222222222344
11.00	3 .	55677788889
5.00	4 .	14444
12.00	4 .	555788889999
6.00	5 .	112444
10.00	5 .	7788888899
29.00	6 .	02233333333333333333333333333333
8.00	6 .	55557799
8.00	7 .	00002222
11.00	7 .	56677799999
4.00	8 .	1444
9.00	8 .	66666666

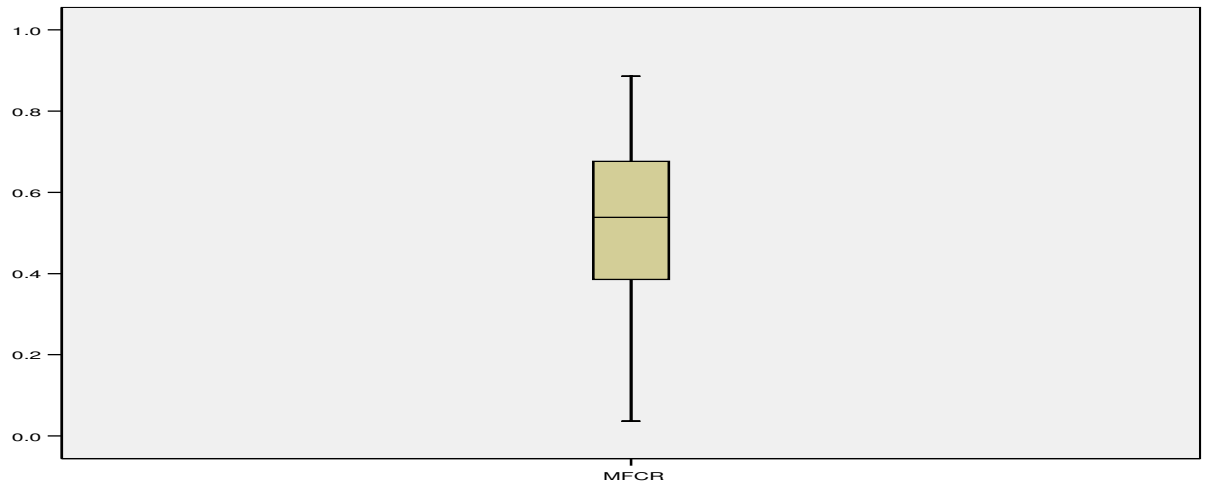
Stem width: .10
Each leaf: 1 case(s)



First Call Resolution Stem-and-Leaf Plot

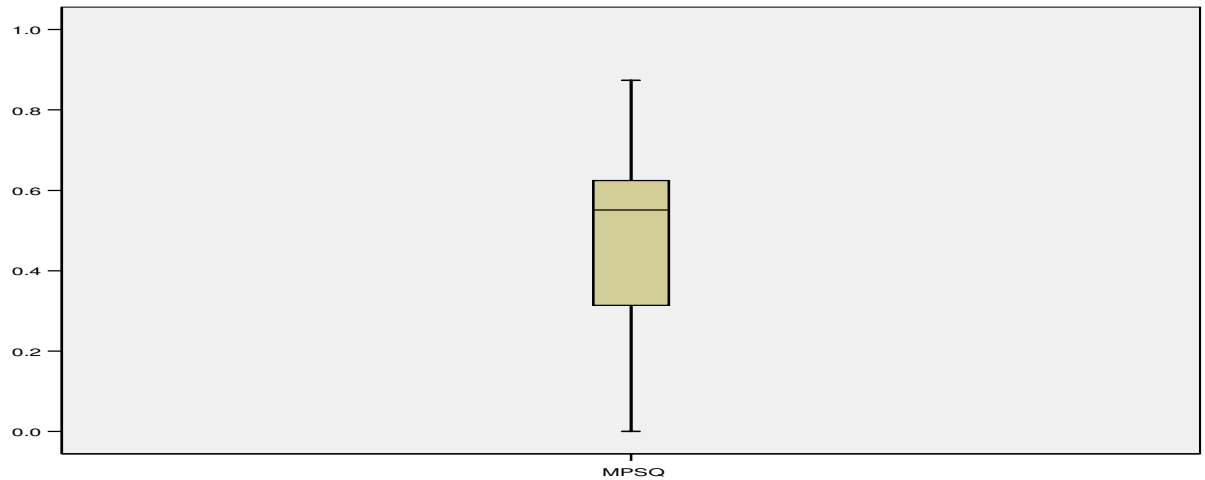
Frequency	Stem &	Leaf
1.00	0 .	3
.00	0 .	
6.00	1 .	000124
4.00	1 .	5589
2.00	2 .	11
12.00	2 .	799999999999
3.00	3 .	233
18.00	3 .	677888888888888888
6.00	4 .	001344
16.00	4 .	5555555555555677
17.00	5 .	00000133333334444
8.00	5 .	55555779
7.00	6 .	0000000
24.00	6 .	667777777777777777777777
8.00	7 .	00112222
4.00	7 .	6666
4.00	8 .	3333
12.00	8 .	888888888888

Stem width: .10
Each leaf: 1 case(s)



Perceive Service Quality Stem-and-Leaf Plot

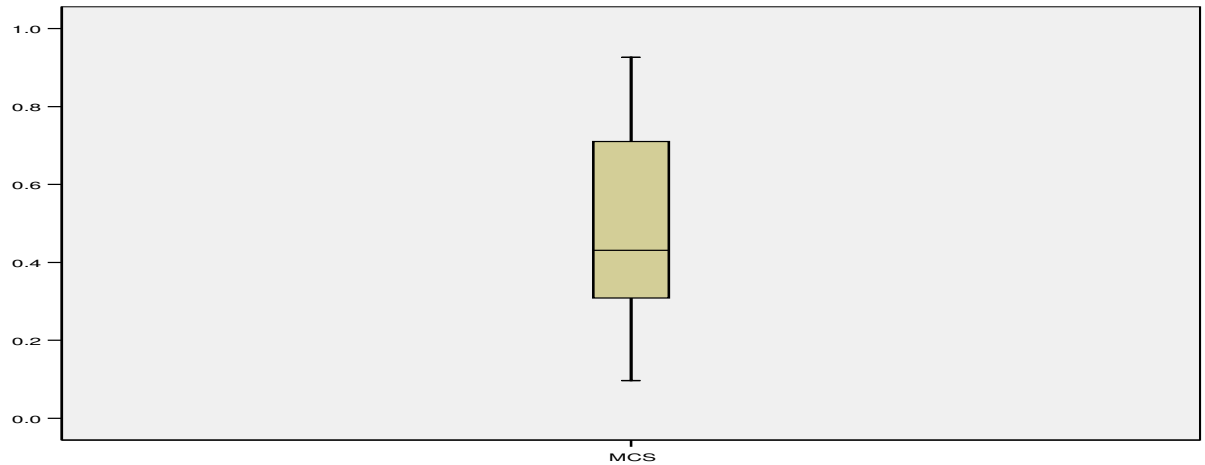
[illegible]



Caller Satisfaction Stem-and-Leaf Plot

Frequency	Stem &	Leaf
2.00	0 .	99
3.00	1 .	144
11.00	1 .	56688888999
6.00	2 .	001234
12.00	2 .	555667777788
17.00	3 .	00000111123444444
15.00	3 .	556666777778999
15.00	4 .	011122233333334
8.00	4 .	55688888
6.00	5 .	000223
9.00	5 .	556667889
3.00	6 .	112
6.00	6 .	599999
12.00	7 .	0122333333344
4.00	7 .	6666
6.00	8 .	000333
14.00	8 .	66666668888889
3.00	9 .	222

Stem width: .10
Each leaf: 1 case(s)



Assessment of normality in AMOS (Group number 1)

Variable	min	max	skew	c.r.	kurtosis	c.r.
FCR	.006	.868	-.584	-2.937	-.835	-2.101
CS	.106	.940	.138	.695	-1.646	-4.142
PSQ6	.000	.883	-.197	-.992	-1.179	-2.966
PSQ5	.000	.862	-.253	-1.275	-1.083	-2.725
PSQ2	.000	.885	-.175	-.880	-1.025	-2.579
TCRM8	.000	.866	-.348	-1.751	-.904	-2.276
TCRM6	.000	.849	-.304	-1.532	-.896	-2.254
TCRM4	.000	.885	-.184	-.927	-1.067	-2.685
KM1	.000	.909	.046	.233	-1.277	-3.215
KM2	.000	.899	-.252	-1.270	-.972	-2.446
KM5	.000	.929	-.080	-.401	-1.155	-2.908
CRMO6	.001	.887	-.493	-2.482	-.548	-1.380
CRMO7	.000	.912	-.242	-1.219	-.965	-2.429
CRMO8	.000	.918	-.052	-.263	-1.162	-2.924
CO10	.000	.873	-.220	-1.107	-1.119	-2.816
CO7	.001	.926	-.142	-.714	-1.285	-3.233
CO5	.000	.894	-.379	-1.908	-.876	-2.203
Mardia's Coefficient					60.447	14.661

Univariate Normality before transform in AMOS

Assessment of normality (Group number 1)

Variable	min	max	skew	c.r.	kurtosis	c.r.
q41	1.000	7.000	-1.057	-5.319	.079	.199
q49	1.000	7.000	.181	.909	-1.473	-3.708
q48	1.000	7.000	-1.620	-8.154	3.438	8.653
q47	1.000	7.000	-.974	-4.902	1.943	4.891
q46	1.000	7.000	-1.248	-6.280	2.727	6.862
q45	2.000	7.000	-1.059	-5.328	1.529	3.849
q44	3.000	7.000	-.661	-3.325	-.014	-.035
q43	1.000	7.000	-1.271	-6.396	2.785	7.009
q42	1.000	7.000	-.977	-4.917	1.014	2.552
q40	2.000	7.000	-1.218	-6.129	1.426	3.589
q39	1.000	7.000	-1.131	-5.692	1.377	3.465
q38	1.000	7.000	-1.220	-6.143	1.492	3.755
q37	1.000	7.000	-1.215	-6.114	1.823	4.588
q36	1.000	7.000	-1.588	-7.995	3.576	8.999
q35	2.000	7.000	-.938	-4.719	1.047	2.635
q34	1.000	7.000	-1.162	-5.851	1.913	4.813
q33	2.000	7.000	-.995	-5.006	.919	2.312
q32	1.000	7.000	-1.380	-6.944	2.318	5.835
q31	1.000	7.000	-1.192	-6.001	1.769	4.451
q21	1.000	7.000	-1.206	-6.069	4.108	10.337
q22	1.000	7.000	-1.368	-6.885	3.380	8.506
q23	2.000	7.000	-.634	-3.193	1.140	2.868
q24	1.000	7.000	-1.460	-7.349	3.283	8.263
q25	1.000	7.000	-1.065	-5.360	3.560	8.960
q26	2.000	7.000	-1.029	-5.177	1.885	4.743
q27	1.000	7.000	-1.078	-5.423	2.366	5.955
q28	2.000	7.000	-.604	-3.042	1.038	2.611
q29	1.000	7.000	-.999	-5.027	2.018	5.079
q30	1.000	7.000	-1.156	-5.821	2.182	5.492
q11	3.000	7.000	-.495	-2.489	-.165	-.415
q12	1.000	7.000	-.930	-4.680	1.678	4.223
q13	1.000	7.000	-1.357	-6.831	3.081	7.753
q14	2.000	7.000	-1.019	-5.131	1.553	3.909
q15	2.000	7.000	-1.017	-5.121	1.317	3.313
q16	1.000	7.000	-1.296	-6.523	1.824	4.589
q17	1.000	7.000	-1.178	-5.929	2.169	5.460
q18	2.000	7.000	-.765	-3.850	1.283	3.228

Variable	min	max	skew	c.r.	kurtosis	c.r.
q19	2.000	7.000	-.727	-3.660	.619	1.559
q20	2.000	7.000	-.757	-3.809	.877	2.207
q10	1.000	7.000	-1.318	-6.634	2.919	7.345
q9	1.000	7.000	-1.317	-6.630	2.576	6.483
q8	1.000	7.000	-1.321	-6.651	2.681	6.748
q7	2.000	7.000	-.497	-2.499	.188	.473
q6	2.000	7.000	-.780	-3.926	.668	1.680
q5	1.000	7.000	-1.098	-5.525	1.418	3.570
q4	2.000	7.000	-.950	-4.781	1.073	2.701
q3	3.000	7.000	-.666	-3.352	.367	.923
q2	1.000	7.000	-1.161	-5.844	2.673	6.728
q1	2.000	7.000	-.476	-2.394	-.446	-1.122
Multivariate					778.755	67.904

Univariate Normality after transform in AMOS

Assessment of normality (Group number 1)

Variable	Min	max	skew	c.r.	kurtosis	c.r.
FCR	.006	.868	-.584	-2.937	-.835	-2.101
CS	.106	.940	.138	.695	-1.646	-4.142
PSQ7	.000	.869	-.443	-2.228	-.732	-1.843
PSQ6	.000	.883	-.197	-.992	-1.179	-2.966
PSQ5	.000	.862	-.253	-1.275	-1.083	-2.725
PSQ4	.000	.884	-.222	-1.119	-1.075	-2.706
PSQ3	.002	.870	-.158	-.795	-1.226	-3.086
PSQ2	.000	.885	-.175	-.880	-1.025	-2.579
PSQ1	.000	.862	-.235	-1.181	-1.159	-2.918
TCRM10	.003	.866	-.457	-2.302	-.807	-2.030
TCRM9	.000	.876	-.396	-1.991	-.942	-2.371
TCRM8	.000	.866	-.348	-1.751	-.904	-2.276
TCRM7	.000	.855	-.381	-1.918	-.996	-2.507
TCRM6	.000	.849	-.304	-1.532	-.896	-2.254
TCRM5	.001	.870	-.195	-.980	-1.136	-2.858
TCRM4	.000	.885	-.184	-.927	-1.067	-2.685
TCRM3	.002	.867	-.333	-1.676	-1.093	-2.750
TCRM2	.000	.874	-.391	-1.970	-.724	-1.822
TCRM1	.000	.875	-.310	-1.562	-.875	-2.201
KM1	.000	.909	.046	.233	-1.277	-3.215
KM2	.000	.899	-.252	-1.270	-.972	-2.446
KM3	.000	.914	.010	.050	-1.236	-3.111
KM4	.000	.892	-.169	-.851	-.883	-2.221
KM5	.000	.929	-.080	-.401	-1.155	-2.908

Variable	Min	max	skew	c.r.	kurtosis	c.r.
KM6	.001	.904	-.111	-.558	-1.035	-2.604
KM7	.000	.890	-.105	-.529	-1.119	-2.816
KM8	.000	.927	.064	.323	-1.182	-2.976
KM9	.000	.909	-.152	-.766	-1.146	-2.885
KM10	.000	.900	-.157	-.790	-1.056	-2.657
CRMO1	.003	.905	-.122	-.615	-1.259	-3.168
CRMO2	.000	.919	-.234	-1.180	-1.121	-2.822
CRMO3	.000	.914	-.238	-1.198	-1.069	-2.690
CRMO4	.000	.907	-.301	-1.515	-.995	-2.505
CRMO5	.001	.893	-.215	-1.081	-1.054	-2.651
CRMO6	.001	.887	-.493	-2.482	-.548	-1.380
CRMO7	.000	.912	-.242	-1.219	-.965	-2.429
CRMO8	.000	.918	-.052	-.263	-1.162	-2.924
CRMO9	.000	.927	-.249	-1.251	-1.066	-2.683
CRMO10	.000	.903	-.158	-.794	-1.166	-2.935
CO10	.000	.873	-.220	-1.107	-1.119	-2.816
CO9	.000	.868	-.264	-1.329	-.953	-2.398
CO8	.000	.883	-.284	-1.430	-.875	-2.201
CO7	.001	.926	-.142	-.714	-1.285	-3.233
CO6	.002	.904	-.222	-1.118	-1.076	-2.708
CO5	.000	.894	-.379	-1.908	-.876	-2.203
CO4	.000	.906	-.385	-1.937	-.975	-2.454
CO3	.006	.922	-.213	-1.073	-1.115	-2.807
CO2	.000	.885	-.193	-.972	-1.081	-2.719
CO1	.011	.914	-.244	-1.228	-1.027	-2.584
Multivariate					597.552	52.104

Appendix D: Test of Non Respondent Bias

Group Statistics

	ResponseBias	N	Mean	Std. Deviation	Std. Error Mean
MC0	Early Response	90	.5161	.20142	.02123
	Late Response	62	.5514	.15759	.02001
MCRMO	Early Response	90	.4990	.20308	.02141
	Late Response	62	.5554	.17083	.02170
MKM	Early Response	90	.5123	.19496	.02055
	Late Response	62	.5011	.19686	.02500
MTCRM	Early Response	90	.5109	.22117	.02331
	Late Response	62	.5419	.20240	.02571
MFCR	Early Response	90	.4972	.21816	.02300
	Late Response	62	.5675	.17476	.02219
MPSQ	Early Response	90	.5137	.22725	.02395
	Late Response	62	.5097	.17962	.02281
MCS	Early Response	90	.4255	.17630	.01858
	Late Response	62	.5848	.27044	.03435

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
MC0	Equal variances assumed	6.956	.009	-1.158	150	.249	-.03532	.03051	-.09560	.02497
	Equal variances not assumed			-1.210	147.508	.228	-.03532	.02918	-.09298	.02234
MCRMO	Equal variances assumed	2.456	.119	-1.792	150	.075	-.05639	.03146	-.11855	.00578
	Equal variances not assumed			-1.850	144.025	.066	-.05639	.03048	-.11663	.00386
MKM	Equal variances assumed	.428	.514	.345	150	.730	.01116	.03230	-.05267	.07499
	Equal variances not assumed			.345	130.456	.731	.01116	.03236	-.05287	.07518
MTCRM	Equal variances assumed	.489	.486	-.878	150	.381	-.03097	.03528	-.10068	.03873
	Equal variances not assumed			-.893	138.431	.374	-.03097	.03470	-.09959	.03764
MFCR	Equal variances assumed	4.830	.030	-2.111	150	.036	-.07027	.03328	-.13603	-.00451
	Equal variances not assumed			-2.199	146.529	.029	-.07027	.03196	-.13343	-.00710
MPSQ	Equal variances assumed	4.680	.032	.116	150	.908	.00401	.03453	-.06421	.07223
	Equal variances not assumed			.121	147.105	.904	.00401	.03308	-.06136	.06938
MCS	Equal variances assumed	34.263	.000	-4.397	150	.000	-.15929	.03623	-.23088	-.08771
	Equal variances not assumed			-4.079	96.288	.000	-.15929	.03905	-.23681	-.08178

Appendix E: Descriptive Statistics

Descriptive Statistics for Demographic Variables

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	97	57.7	57.7	57.7
	Female	71	42.3	42.3	100.0
	Total	168	100.0	100.0	

Industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manufacturing	18	10.7	10.7	10.7
	Wholesale	52	31.0	31.0	41.7
	Services	94	56.0	56.0	97.6
	Other	4	2.4	2.4	100.0
	Total	168	100.0	100.0	

Revenue

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Between RM100,000 – RM900,000	17	10.1	10.1	10.1
	Between RM1M – RM9,900,000M	71	42.3	42.3	52.4
	RM10M and Above	80	47.6	47.6	100.0
	Total	168	100.0	100.0	

Numbers of Employees

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 100	15	8.9	8.9	8.9
	Between 101- 500	57	33.9	33.9	42.9
	501 or more	96	57.1	57.1	100.0
	Total	168	100.0	100.0	

Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 5 years	30	17.9	17.9	17.9
	Between 5 and 10 years	78	46.4	46.4	64.3
	Between 10 and 20 years	49	29.2	29.2	93.5
	Above 20 years	11	6.5	6.5	100.0
	Total	168	100.0	100.0	

Qualifications

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No certification held	10	6.0	6.0	6.0
	Primary school Certificate	53	31.5	31.5	37.5
	School Certificate	63	37.5	37.5	75.0
	Tertiary school certificate	17	10.1	10.1	85.1
	Postgraduate Degrees	25	14.9	14.9	100.0
	Total	168	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Between 18 and 35 years	94	55.9	55.9	55.9
	Between 36 and 45 years	60	35.7	35.7	91.7
	Between 46 and 55 years	10	6.0	6.0	97.6
	Over 55 years	4	2.4	2.4	100.0
	Total	168	100.0	100.0	

Explore

[DataSet1] F:\Trial Files\Aliyu 152 Respondent.sav

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MC0	152	100.0%	0	.0%	152	100.0%
MCRMO	152	100.0%	0	.0%	152	100.0%
MKM	152	100.0%	0	.0%	152	100.0%
MTCRM	152	100.0%	0	.0%	152	100.0%
MFCR	152	100.0%	0	.0%	152	100.0%
MPSQ	152	100.0%	0	.0%	152	100.0%
MCS	152	100.0%	0	.0%	152	100.0%

Descriptives

			Statistic	Std. Error
MCO	Mean		.5305	.01501
	95% Confidence Interval for Mean	Lower Bound	.5008	
		Upper Bound	.5601	
	5% Trimmed Mean		.5311	
	Median		.5338	
	Variance		.034	
	Std. Deviation		.18506	
	Minimum		.10	
	Maximum		.90	
	Range		.80	
	Interquartile Range		.32	
	Skewness		-.072	.197
	Kurtosis		-.864	.391
MCRMO	Mean		.5220	.01557
	95% Confidence Interval for Mean	Lower Bound	.4912	
		Upper Bound	.5528	
	5% Trimmed Mean		.5247	
	Median		.5478	
	Variance		.037	
	Std. Deviation		.19202	
	Minimum		.01	
	Maximum		.91	
	Range		.90	
	Interquartile Range		.32	
	Skewness		-.240	.197
	Kurtosis		-.458	.391
MKM	Mean		.5077	.01583
	95% Confidence Interval for Mean	Lower Bound	.4764	
		Upper Bound	.5390	
	5% Trimmed Mean		.5085	
	Median		.5350	
	Variance		.038	
	Std. Deviation		.19516	
	Minimum		.02	
	Maximum		.91	
	Range		.89	
	Interquartile Range		.32	
	Skewness		-.118	.197
	Kurtosis		-.763	.391
MTCRM	Mean		.5235	.01732
	95% Confidence Interval for Mean	Lower Bound	.4893	
		Upper Bound	.5578	
	5% Trimmed Mean		.5301	
	Median		.5802	
	Variance		.046	
	Std. Deviation		.21358	

	Range	Minimum	N	Maximum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
CO1	.90	.01	152	.91	.5183	.02340	.28847	.083	-.246	.197	-1.021	.391
CO2	.89	.00	152	.89	.5228	.02169	.26745	.072	-.195	.197	-1.076	.391
CO3	.92	.01	152	.92	.5330	.02292	.28252	.080	-.215	.197	-1.112	.391
CO4	.91	.00	152	.91	.5308	.02256	.27818	.077	-.389	.197	-.967	.391
CO5	.89	.00	152	.89	.5409	.02214	.27299	.075	-.383	.197	-.865	.391
CO6	.90	.00	152	.90	.5297	.02257	.27824	.077	-.224	.197	-1.072	.391
CO7	.93	.00	152	.93	.5252	.02395	.29524	.087	-.143	.197	-1.287	.391
CO8	.88	.00	152	.88	.5346	.02118	.26113	.068	-.287	.197	-.864	.391
CO9	.87	.00	152	.87	.5344	.02132	.26284	.069	-.267	.197	-.944	.391
CO10	.87	.00	152	.87	.5350	.02190	.27006	.073	-.222	.197	-1.116	.391
CRMO1	.90	.00	152	.91	.5088	.02380	.29348	.086	-.123	.197	-1.261	.391
CRMO2	.92	.00	152	.92	.5354	.02302	.28386	.081	-.237	.197	-1.119	.391
CRMO3	.91	.00	152	.91	.5230	.02271	.28001	.078	-.240	.197	-1.064	.391
CRMO4	.91	.00	152	.91	.5353	.02212	.27272	.074	-.304	.197	-.988	.391
CRMO5	.89	.00	152	.89	.5194	.02231	.27506	.076	-.217	.197	-1.049	.391
CRMO6	.89	.00	152	.89	.5348	.02078	.25618	.066	-.498	.197	-.526	.391
CRMO7	.91	.00	152	.91	.5161	.02179	.26861	.072	-.245	.197	-.957	.391
CRMO8	.92	.00	152	.92	.5111	.02238	.27593	.076	-.053	.197	-1.160	.391
CRMO9	.93	.00	152	.93	.5220	.02246	.27686	.077	-.251	.197	-1.061	.391
CRMO10	.90	.00	152	.90	.5139	.02276	.28058	.079	-.159	.197	-1.165	.391
KM1	.91	.00	152	.91	.4947	.02301	.28374	.081	.047	.197	-1.280	.391
KM2	.90	.00	152	.90	.5174	.02146	.26452	.070	-.255	.197	-.964	.391
KM3	.91	.00	152	.91	.5012	.02261	.27875	.078	.010	.197	-1.237	.391
KM4	.89	.00	152	.89	.5165	.02087	.25726	.066	-.171	.197	-.872	.391
KM5	.93	.00	152	.93	.5058	.02163	.26662	.071	-.081	.197	-1.154	.391
KM6	.90	.00	152	.90	.5167	.02155	.26568	.071	-.112	.197	-1.029	.391
KM7	.89	.00	152	.89	.5191	.02197	.27085	.073	-.106	.197	-1.116	.391
KM8	.93	.00	152	.93	.4935	.02232	.27522	.076	.065	.197	-1.182	.391
KM9	.91	.00	152	.91	.5084	.02270	.27992	.078	-.154	.197	-1.145	.391
KM10	.90	.00	152	.90	.5040	.02193	.27039	.073	-.159	.197	-1.051	.391
TCRM1	.88	.00	152	.88	.5235	.02129	.26249	.069	-.313	.197	-.864	.391

TCRM2	.87	.00	152	.87	.5221	.02101	.25905	.067	-.395	.197	-.708	.391
TCRM3	.87	.00	152	.87	.5253	.02254	.27784	.077	-.336	.197	-1.089	.391
TCRM4	.88	.00	152	.88	.5122	.02240	.27621	.076	-.186	.197	-1.062	.391
TCRM5	.87	.00	152	.87	.5118	.02232	.27524	.076	-.197	.197	-1.134	.391
TCRM6	.85	.00	152	.85	.5246	.02050	.25271	.064	-.307	.197	-.885	.391
TCRM7	.85	.00	152	.86	.5269	.02200	.27125	.074	-.385	.197	-.989	.391
TCRM8	.87	.00	152	.87	.5260	.02190	.27005	.073	-.351	.197	-.894	.391
TCRM9	.88	.00	152	.88	.5324	.02208	.27224	.074	-.399	.197	-.933	.391
TCRM10	.86	.00	152	.87	.5306	.02142	.26412	.070	-.462	.197	-.793	.391
FCR	.86	.01	152	.87	.5120	.02301	.28368	.080	-.589	.197	-.822	.391
PSQ1	.86	.00	152	.86	.5061	.02282	.28137	.079	-.237	.197	-1.158	.391
PSQ2	.89	.00	152	.89	.5236	.02133	.26303	.069	-.177	.197	-1.019	.391
PSQ3	.87	.00	152	.87	.4979	.02358	.29070	.085	-.159	.197	-1.227	.391
PSQ4	.88	.00	152	.88	.5097	.02243	.27651	.076	-.225	.197	-1.071	.391
PSQ5	.86	.00	152	.86	.5053	.02215	.27307	.075	-.256	.197	-1.079	.391
PSQ6	.88	.00	152	.88	.5193	.02278	.28084	.079	-.199	.197	-1.178	.391
PSQ7	.87	.00	152	.87	.5229	.02097	.25848	.067	-.447	.197	-.717	.391
CS	.83	.11	152	.94	.4899	.02611	.32186	.104	.140	.197	-1.661	.391
Valid N (listwise)			152									

Descriptive Statistics

Appendix F: Factor Analysis

KMO and Bartlett's Test for CRM Dimensions

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.829
Bartlett's Test of Sphericity	Approx. Chi-Square	4635.079
	Df	780
	Sig.	.000

Communalities for CRM Dimensions

	Initial	Extraction
CO1	1.000	.784
CO2	1.000	.798
CO3	1.000	.795
CO4	1.000	.825
CO5	1.000	.635
CO6	1.000	.685
CO7	1.000	.756
CO8	1.000	.737
CO9	1.000	.804
CO10	1.000	.757
CRMO1	1.000	.709
CRMO2	1.000	.727
CRMO3	1.000	.706
CRMO4	1.000	.685
CRMO5	1.000	.755
CRMO6	1.000	.635
CRMO7	1.000	.772
CRMO8	1.000	.692
CRMO9	1.000	.647
CRMO10	1.000	.615
KM1	1.000	.746
KM2	1.000	.672
KM3	1.000	.751
KM4	1.000	.713
KM5	1.000	.709
KM6	1.000	.787
KM7	1.000	.594
KM8	1.000	.644
KM9	1.000	.714
KM10	1.000	.680

TCRM1	1.000	.636
TCRM2	1.000	.783
TCRM3	1.000	.811
TCRM4	1.000	.732
TCRM5	1.000	.725
TCRM6	1.000	.743
TCRM7	1.000	.679
TCRM8	1.000	.773
TCRM9	1.000	.780
TCRM10	1.000	.773

Extraction Method: Principal Component Analysis.

Total Variance Explained for CRM Dimensions

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.496	33.740	33.740	13.496	33.740	33.740	7.513	18.782	18.782
2	4.573	11.433	45.173	4.573	11.433	45.173	5.073	12.682	31.464
3	2.598	6.496	51.668	2.598	6.496	51.668	3.860	9.650	41.114
4	2.153	5.382	57.051	2.153	5.382	57.051	3.245	8.114	49.228
5	1.516	3.790	60.841	1.516	3.790	60.841	2.663	6.657	55.885
6	1.278	3.194	64.034	1.278	3.194	64.034	1.869	4.672	60.557
7	1.263	3.159	67.193	1.263	3.159	67.193	1.734	4.334	64.891
8	1.079	2.699	69.892	1.079	2.699	69.892	1.555	3.887	68.778
9	1.011	2.527	72.418	1.011	2.527	72.418	1.456	3.640	72.418
10	.956	2.390	74.808						
11	.827	2.066	76.874						
12	.814	2.035	78.909						
13	.799	1.998	80.907						
14	.674	1.685	82.592						
15	.607	1.517	84.109						
16	.566	1.414	85.523						
17	.512	1.279	86.803						
18	.491	1.227	88.030						
19	.463	1.157	89.186						
20	.448	1.119	90.305						
21	.388	.970	91.275						
22	.339	.847	92.122						
23	.319	.798	92.920						
24	.295	.737	93.656						
25	.279	.698	94.355						
26	.263	.657	95.012						
27	.237	.593	95.605						
28	.226	.564	96.170						
29	.207	.519	96.688						
30	.187	.467	97.155						

31	.179	.448	97.604						
32	.164	.411	98.014						
33	.152	.380	98.394						
34	.138	.345	98.739						
35	.115	.287	99.026						
36	.100	.251	99.277						
37	.090	.226	99.503						
38	.077	.193	99.696						
39	.068	.170	99.866						
40	.054	.134	100.000						

Extraction Method: Principal Component Analysis.

KMO and Bartlett's Test for Perceive Service Quality

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.867
Bartlett's Test of Sphericity	Approx. Chi-Square	489.141
	Df	21
	Sig.	.000

Communalities for CRM Dimension and Perceive Service Quality

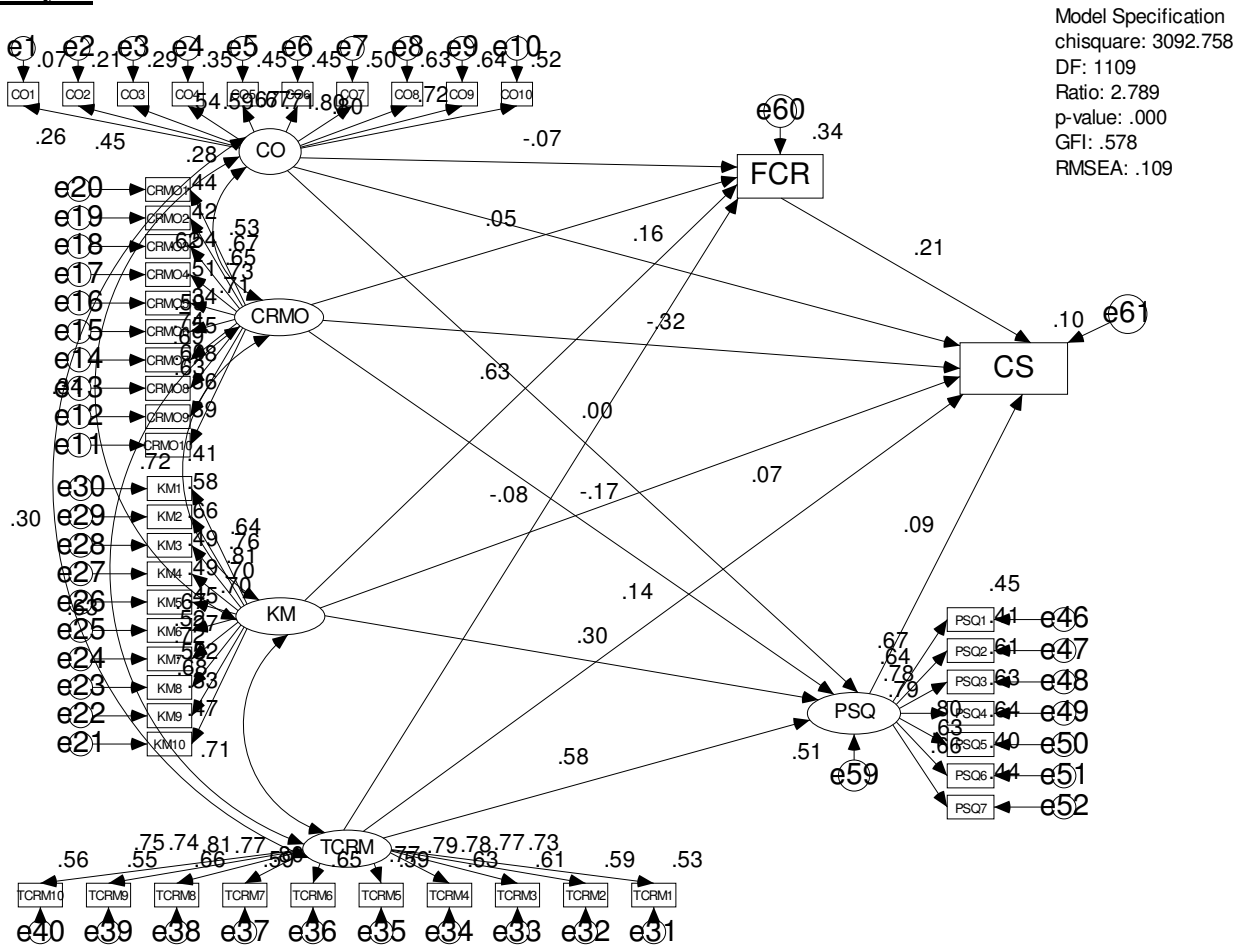
	Initial	Extraction
CO1	1.000	.475
CO2	1.000	.546
CO3	1.000	.429
CO4	1.000	.506
CO5	1.000	.505
CO6	1.000	.583
CO7	1.000	.563
CO8	1.000	.661
CO9	1.000	.677
CO10	1.000	.578
CRMO1	1.000	.381
CRMO2	1.000	.528
CRMO3	1.000	.580
CRMO4	1.000	.594
CRMO5	1.000	.554
CRMO6	1.000	.558
CRMO7	1.000	.623
CRMO8	1.000	.643
CRMO9	1.000	.544
CRMO10	1.000	.511
KM1	1.000	.508
KM2	1.000	.612
KM3	1.000	.702
KM4	1.000	.606
KM5	1.000	.553
KM6	1.000	.566
KM7	1.000	.413
KM8	1.000	.582
KM9	1.000	.597
KM10	1.000	.594
TCRM1	1.000	.610
TCRM2	1.000	.608
TCRM3	1.000	.693
TCRM4	1.000	.689
TCRM5	1.000	.698
TCRM6	1.000	.658
TCRM7	1.000	.643
TCRM8	1.000	.749
TCRM9	1.000	.621
TCRM10	1.000	.705
PSQ1	1.000	.522
PSQ2	1.000	.479
PSQ3	1.000	.657
PSQ4	1.000	.673

PSQ5	1.000	.655
PSQ6	1.000	.481
PSQ7	1.000	.569

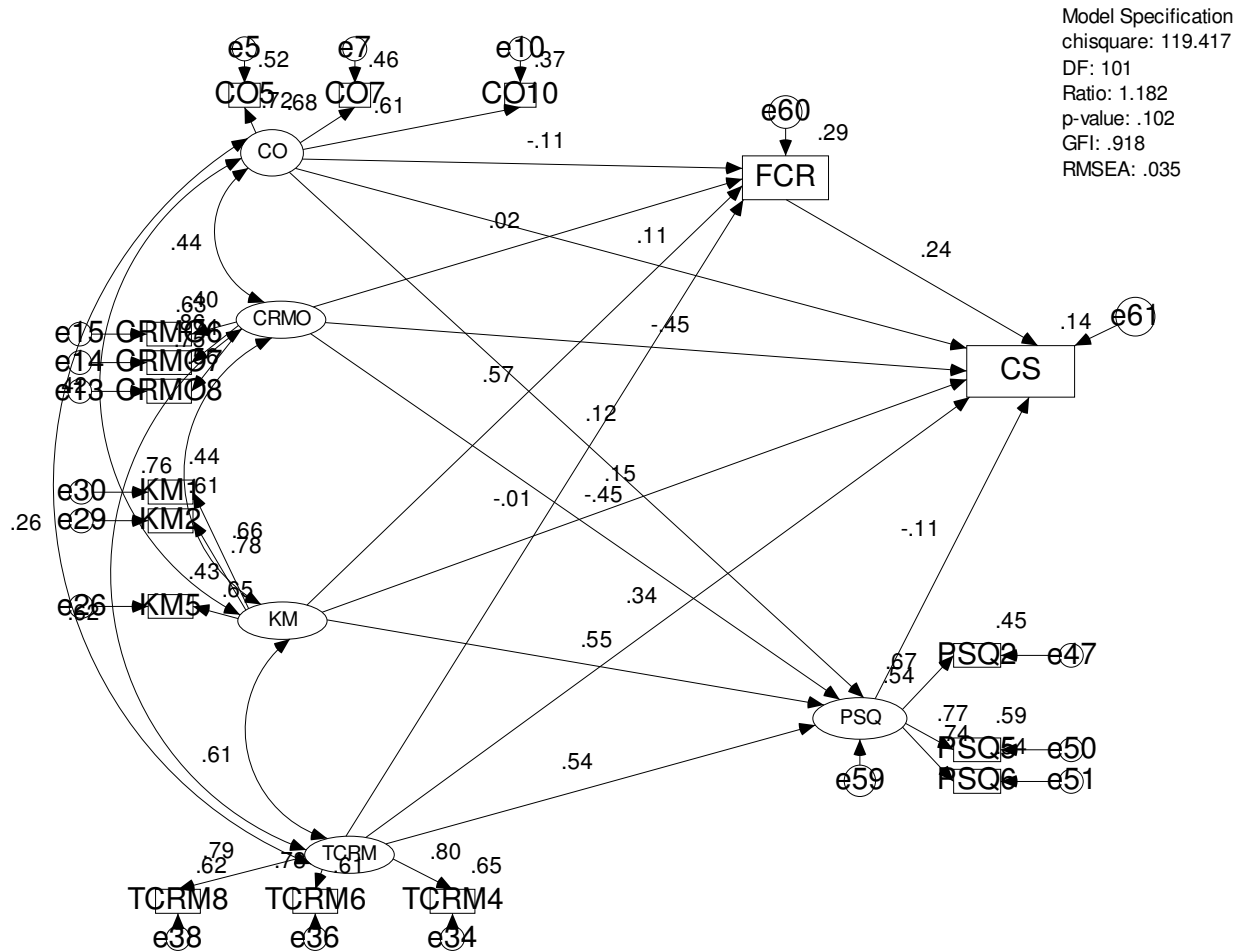
Extraction Method: Principal Component Analysis.

Appendix G: AMOS Output

Figure 5.3: Results of Hypothesized measurement model in confirmatory factor analysis



Final Revised Structural Model



Notes for Group (Group number 1)

The model is recursive.

Sample size = 152

Result (Default model)

Minimum was achieved

Chi-square = 119.417

Degrees of freedom = 101

Probability level = .102

Assessment of normality (Group number 1)

Variable	min	max	skew	c.r.	kurtosis	c.r.
FCR	.006	.868	-.584	-2.937	-.835	-2.101
CS	.106	.940	.138	.695	-1.646	-4.142
PSQ6	.000	.883	-.197	-.992	-1.179	-2.966
PSQ5	.000	.862	-.253	-1.275	-1.083	-2.725
PSQ2	.000	.885	-.175	-.880	-1.025	-2.579
TCRM8	.000	.866	-.348	-1.751	-.904	-2.276
TCRM6	.000	.849	-.304	-1.532	-.896	-2.254
TCRM4	.000	.885	-.184	-.927	-1.067	-2.685
KM1	.000	.909	.046	.233	-1.277	-3.215
KM2	.000	.899	-.252	-1.270	-.972	-2.446
KM5	.000	.929	-.080	-.401	-1.155	-2.908
CRMO6	.001	.887	-.493	-2.482	-.548	-1.380
CRMO7	.000	.912	-.242	-1.219	-.965	-2.429
CRMO8	.000	.918	-.052	-.263	-1.162	-2.924
CO10	.000	.873	-.220	-1.107	-1.119	-2.816
CO7	.001	.926	-.142	-.714	-1.285	-3.233
CO5	.000	.894	-.379	-1.908	-.876	-2.203
Multivariate					60.447	14.661

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
PSQ	<---	CO	.109	.102	1.066	.286	par_11
PSQ	<---	CRMO	-.487	.222	-2.199	.028	par_12
PSQ	<---	KM	.517	.194	2.667	.008	par_13
PSQ	<---	TCRM	.431	.113	3.797	***	par_14
FCR	<---	CO	-.160	.149	-1.073	.283	par_20
FCR	<---	CRMO	.043	.292	.146	.884	par_21
FCR	<---	KM	.857	.277	3.098	.002	par_23
FCR	<---	TCRM	-.013	.153	-.084	.933	par_25
CO5	<---	CO	1.000				
CO7	<---	CO	1.020	.178	5.713	***	par_1
CO10	<---	CO	.831	.153	5.423	***	par_2
CRMO8	<---	CRMO	1.275	.175	7.303	***	par_3
CRMO7	<---	CRMO	1.420	.179	7.952	***	par_4
CRMO6	<---	CRMO	1.000				
KM5	<---	KM	.930	.140	6.663	***	par_5
KM2	<---	KM	1.101	.146	7.536	***	par_6

			Estimate	S.E.	C.R.	P	Label
KM1	<---	KM	1.000				
TCRM4	<---	TCRM	1.000				
TCRM6	<---	TCRM	.886	.092	9.587	***	par_7
TCRM8	<---	TCRM	.960	.101	9.551	***	par_8
PSQ2	<---	PSQ	1.000				
PSQ5	<---	PSQ	1.190	.174	6.829	***	par_9
PSQ6	<---	PSQ	1.172	.162	7.221	***	par_10
CS	<---	CRMO	-.895	.453	-1.975	.048	par_22
CS	<---	KM	.257	.427	.602	.547	par_24
CS	<---	TCRM	.487	.244	1.994	.046	par_26
CS	<---	CO	.188	.189	.990	.322	par_28
CS	<---	FCR	.273	.113	2.408	.016	par_29
CS	<---	PSQ	-.196	.314	-.623	.533	par_30

Squared Multiple Correlations (R^2): (Group number 1 - Default model)

	Estimate
FCR	.294
PSQ	.539
CS	.138
PSQ6	.541
PSQ5	.590
PSQ2	.449
TCRM8	.623
TCRM6	.606
TCRM4	.646
KM1	.437
KM2	.610
KM5	.429
CRMO6	.401
CRMO7	.737
CRMO8	.562
CO10	.368
CO7	.463
CO5	.521

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	52	119.417	101	.102	1.182
Saturated model	153	.000	0		
Independence model	17	997.288	136	.000	7.333

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.003	.918	.875	.606
Saturated model	.000	1.000		
Independence model	.021	.396	.320	.352

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.880	.839	.979	.971	.979
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000
Independence model	6.605	5.704	5.064	6.393	

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.035	.000	.057	.854
Independence model	.205	.193	.217	.000

Modification Index for Hypothesized CFA Exogenous Variables

	M.I.	Par Change
e52 <--> KM	4.598	-.005
e52 <--> CRMO	4.068	.004
e49 <--> CRMO	6.335	.005
e48 <--> CRMO	7.630	-.005
e48 <--> e60	12.280	.013
e48 <--> e51	10.230	-.011
e47 <--> e60	9.919	-.013
e47 <--> e51	8.043	.011
e46 <--> CO	4.115	.002

	M.I.	Par Change
e46 <--> e51	10.118	-.013
e46 <--> e49	7.434	-.009
e46 <--> e48	14.394	.013
e40 <--> e59	24.829	.011
e40 <--> e50	4.084	.005
e40 <--> e47	8.602	.009
e39 <--> e59	4.054	.005
e39 <--> e49	4.404	.006
e39 <--> e40	28.675	.015
e38 <--> TCRM	4.851	.004
e38 <--> KM	14.013	-.007
e38 <--> CO	6.250	-.002
e38 <--> e60	5.760	-.008
e38 <--> e46	4.029	-.006
e38 <--> e39	6.209	.006
e37 <--> e49	4.283	-.006
e37 <--> e38	10.467	.008
e36 <--> e47	9.736	-.008
e36 <--> e46	10.402	.009
e36 <--> e39	14.589	-.009
e35 <--> e60	5.023	.008
e35 <--> e59	7.505	-.006
e35 <--> e36	8.330	.007
e34 <--> e50	6.798	.007
e34 <--> e48	8.875	-.008
e33 <--> e40	20.529	-.012
e32 <--> KM	5.515	.004
e32 <--> e52	4.232	.006
e32 <--> e50	9.607	-.008
e32 <--> e49	8.886	.008
e32 <--> e47	7.751	-.008
e32 <--> e40	4.033	-.005
e32 <--> e39	5.647	-.006
e32 <--> e37	4.225	-.005
e32 <--> e36	5.945	.005
e32 <--> e35	5.338	-.006
e32 <--> e33	16.483	.010
e31 <--> e32	8.021	.007
e30 <--> TCRM	7.826	-.007
e30 <--> CRMO	6.350	.005
e30 <--> e52	5.213	-.008

	M.I.	Par Change
e30 <--> e36	6.126	-.007
e30 <--> e31	4.807	.007
e29 <--> CRMO	4.034	.004
e29 <--> e60	4.838	-.008
e29 <--> e48	12.999	-.010
e29 <--> e46	5.347	-.007
e29 <--> e35	19.125	-.012
e28 <--> e60	16.765	.014
e28 <--> e38	7.321	-.006
e27 <--> TCRM	9.901	-.007
e27 <--> e49	6.737	.007
e27 <--> e37	5.513	-.007
e27 <--> e33	4.030	-.006
e27 <--> e29	4.871	.006
e26 <--> e47	7.874	.009
e25 <--> e60	6.334	-.010
e25 <--> e49	6.174	-.008
e25 <--> e46	4.708	.008
e25 <--> e39	8.029	-.009
e25 <--> e33	6.796	.008
e25 <--> e30	23.630	-.018
e25 <--> e26	5.080	.007
e24 <--> e59	5.807	-.007
e24 <--> e50	4.166	-.007
e24 <--> e46	6.034	.010
e24 <--> e31	13.435	.013
e24 <--> e30	4.731	.009
e24 <--> e29	4.252	-.007
e24 <--> e28	7.943	-.009
e23 <--> TCRM	4.397	.005
e23 <--> e33	10.105	.009
e23 <--> e31	6.169	-.007
e23 <--> e27	7.331	-.008
e23 <--> e25	5.417	.008
e22 <--> TCRM	11.374	.009
e22 <--> e59	6.258	-.007
e22 <--> e40	9.436	-.011
e22 <--> e39	4.675	-.008
e22 <--> e37	11.584	.012
e22 <--> e34	11.738	.011
e22 <--> e33	6.008	.008

	M.I.	Par Change
e22 <--> e28	12.293	-.012
e22 <--> e27	10.262	-.012
e22 <--> e26	6.659	.010
e22 <--> e23	12.327	.013
e21 <--> TCRM	29.555	.013
e21 <--> CRMO	4.561	-.004
e21 <--> e49	4.609	-.007
e21 <--> e34	7.572	.008
e21 <--> e26	8.297	-.009
e21 <--> e22	8.013	.011
e20 <--> CO	10.603	.004
e20 <--> e38	5.930	-.008
e20 <--> e35	12.218	.013
e20 <--> e32	9.134	-.011
e20 <--> e26	13.237	.015
e19 <--> KM	4.123	-.005
e19 <--> CO	11.591	.004
e19 <--> e49	5.914	-.008
e19 <--> e47	6.684	.010
e19 <--> e33	6.954	.009
e19 <--> e26	6.767	.009
e19 <--> e24	4.620	.009
e19 <--> e21	4.161	-.007
e18 <--> KM	12.147	-.008
e18 <--> e46	4.042	-.008
e18 <--> e40	6.487	.008
e18 <--> e39	13.017	.012
e18 <--> e33	9.142	-.010
e18 <--> e25	14.290	-.014
e18 <--> e23	4.848	-.008
e18 <--> e20	10.127	.014
e17 <--> KM	5.377	-.005
e17 <--> CO	5.149	.002
e17 <--> e51	6.049	.009
e17 <--> e46	6.662	-.009
e17 <--> e39	5.481	.007
e17 <--> e29	6.496	.007
e17 <--> e24	5.557	-.009
e17 <--> e19	8.505	.010
e16 <--> e49	23.106	.015
e16 <--> e47	6.790	-.009

	M.I.	Par Change
e16 <--> e46	5.843	-.009
e16 <--> e40	7.700	-.008
e16 <--> e37	5.055	-.007
e16 <--> e32	12.049	.010
e16 <--> e30	4.729	.008
e16 <--> e26	4.277	-.007
e16 <--> e25	9.193	-.010
e16 <--> e19	9.183	-.011
e16 <--> e18	4.446	.008
e16 <--> e17	7.596	.009
e15 <--> CRMO	6.556	.005
e15 <--> CO	12.860	-.004
e15 <--> e49	6.003	.008
e15 <--> e28	5.705	-.007
e15 <--> e27	11.837	.011
e15 <--> e16	8.582	.010
e14 <--> CO	6.872	-.003
e14 <--> e39	9.108	-.009
e14 <--> e20	10.519	-.013
e14 <--> e15	10.042	.010
e13 <--> CO	16.631	-.005
e13 <--> e33	17.964	-.013
e13 <--> e32	5.633	-.007
e13 <--> e27	6.139	.008
e13 <--> e17	5.918	-.008
e13 <--> e14	10.289	.010
e12 <--> TCRM	5.350	-.006
e12 <--> KM	21.745	.011
e12 <--> CRMO	4.231	-.004
e12 <--> e59	4.956	.006
e12 <--> e47	5.065	.009
e12 <--> e36	6.989	-.008
e12 <--> e28	4.955	.007
e12 <--> e25	8.608	.011
e12 <--> e16	4.403	-.008
e11 <--> KM	12.920	.009
e11 <--> e59	7.406	.008
e11 <--> e49	4.411	-.007
e11 <--> e48	9.548	.011
e11 <--> e46	4.837	.009
e11 <--> e35	12.068	-.012

	M.I.	Par Change
e11 <--> e34	4.383	-.007
e11 <--> e27	4.512	-.007
e11 <--> e23	5.375	.008
e11 <--> e17	7.744	-.010
e11 <--> e13	5.331	.009
e11 <--> e12	14.691	.016
e10 <--> CRMO	6.724	.005
e10 <--> e33	9.417	.009
e10 <--> e22	4.986	.008
e10 <--> e20	5.723	.010
e10 <--> e19	5.187	.008
e9 <--> e50	9.151	-.008
e9 <--> e46	9.073	.009
e9 <--> e40	12.246	-.009
e9 <--> e33	10.867	.008
e9 <--> e32	6.869	.006
e9 <--> e21	8.382	-.008
e9 <--> e19	6.442	.008
e9 <--> e13	5.634	-.007
e9 <--> e10	32.588	.016
e8 <--> e60	9.338	.010
e8 <--> e34	4.032	-.005
e8 <--> e14	16.745	-.011
e7 <--> e52	6.583	.009
e7 <--> e49	5.070	-.007
e7 <--> e40	5.669	.008
e7 <--> e10	10.656	-.011
e7 <--> e9	6.423	-.008
e6 <--> e39	14.522	.013
e6 <--> e38	7.375	-.008
e6 <--> e33	4.650	-.007
e6 <--> e28	8.081	.009
e6 <--> e22	12.225	-.014
e6 <--> e16	5.706	.008
e6 <--> e10	16.714	-.014
e6 <--> e9	8.253	-.009
e6 <--> e7	41.282	.025
e5 <--> e47	5.553	.008
e5 <--> e46	4.849	-.008
e5 <--> e28	7.346	-.008
e5 <--> e26	4.225	.007

	M.I.	Par Change
e5 <--> e22	7.765	.011
e5 <--> e15	5.027	-.008
e4 <--> KM	6.461	-.006
e4 <--> e59	4.890	-.006
e4 <--> e46	5.045	-.009
e4 <--> e38	9.738	.010
e4 <--> e35	11.945	.012
e4 <--> e34	5.379	.008
e4 <--> e32	23.220	-.016
e4 <--> e28	4.374	-.007
e4 <--> e22	5.262	.010
e4 <--> e14	9.420	.011
e4 <--> e9	4.447	-.007
e4 <--> e8	6.912	-.008
e3 <--> e60	7.904	-.013
e3 <--> e49	4.514	-.008
e3 <--> e27	4.982	-.008
e3 <--> e19	5.922	.011
e3 <--> e8	4.621	-.007
e3 <--> e5	6.181	-.010
e3 <--> e4	20.336	.020
e2 <--> KM	6.423	.006
e2 <--> CRMO	10.415	-.008
e2 <--> CO	4.481	.003
e2 <--> e47	4.779	-.009
e2 <--> e30	6.132	.011
e2 <--> e28	8.352	.010
e2 <--> e19	8.051	-.012
e2 <--> e10	4.387	-.008
e2 <--> e3	11.847	.016
e1 <--> CRMO	16.342	-.011
e1 <--> CO	5.151	.003
e1 <--> e38	4.813	-.008
e1 <--> e32	9.089	.012
e1 <--> e28	6.299	.010
e1 <--> e15	5.176	-.011
e1 <--> e13	10.101	-.015
e1 <--> e9	10.175	.013
e1 <--> e7	6.651	-.013
e1 <--> e4	6.348	-.013
e1 <--> e2	35.696	.033

Appendix H: Call Center Performance Metrics

NOKIA - Agent Performance Report

Nokia MEA ALL

Date Range : 01-May-09 - 31-May-09

Agent Statistic

5

No.	Andalusia	ID	AHT	ACD Calls	Avg Talk	Avg Hold	Held Calls	Push Rate %	Caller Satisfaction %
AM	SI MOHAMED GARAM	76027							
SO									
1	ALI ABDELATIF	76022	1.47	808	1.13	1.31	148	3.5%	75.0%
2	ALIREZA NAMI	76084	3.63	915	3.36	0.11	669	56.4%	88.0%
3	ALIYU OLAYEMI ABDULLATEEF	76147	4.89	676	4.41	0.44	630	75.6%	92.4%
4	AMAL ABDEL KHABEER MAHMOUD	76121	5.07	53	4.97	0.01	39	50.9%	89.5%
5	AMIRREZA SABA	76108	3.32	599	3.05	0.07	436	62.3%	89.7%
6	AMMAR S MOHAMMAD	76003	2.57	380	1.92	1.42	175	30.0%	88.9%
7	BELAID MEGOUDA	76012	3.85	692	3.20	0.82	427	80.8%	95.6%
8	FAIZA OMAR ABDALLA THABIT	76098	3.29	905	2.15	0.89	374	29.7%	76.9%
9	IBRAHIMA MBOW	76109	4.77	541	4.14	0.68	353	31.4%	82.4%
10	IRFAN ALI CHANDID	76073	3.02	428	2.70	0.17	268	56.3%	85.6%
11	KEVIN SIMON IRERI KORI	76150	5.32	739	4.49	0.69	519	41.8%	90.9%
12	KHALED DEHANE	76017	3.95	367	3.58	0.27	340	90.5%	90.0%
13	KINN ABASS	76013	4.46	778	4.25	0.15	627	79.4%	94.4%
14	LEMESE NOOR	76085	3.70	598	2.90	0.50	529	69.9%	87.4%
15	MAMADOU NDAW	76010	3.72	837	3.27	0.13	890	100.4%	90.2%
16	YAZAN (MOHAMMAD ALI) MUBARAK AL NAHAR	76095	3.94	486	3.11	0.58	388	75.7%	98.1%
17	YOUCEF OUDELHA	76026	4.52	496	4.22	0.17	526	57.9%	97.6%

Bio Data – ALIYU OLAYEMI ABDULLATEEF



Address: No 53, SS2D Sisiran Jalan Sintok
University Utara Malaysia
Changlun, Malaysia
Date of Birth: 05 November 1974
Sex: Male
Marital Status: Married
Nationality: Nigerian
Passport no: A00909737
Mobile: +60-172964350 Fax: Available on request
E-mail: yemialiyu@yahoo.com or s91853@student.uum.edu.my

TEACHING/WORK EXPERIENCE

Jan 2011 – May, 2011 **Graduate Teaching Assistant in Quality Management and Manufacturing Planning and Control**
College of Business (COB), University Utara Malaysia

Duties:

- 1 Teaching Undergraduates Students in Quality Management and Manufacturing Planning and Control
- 2 Assessing and advising students on their Academic work
- 3 Marking and recording Assignments, Quizzes, Presentations and Examinations
- 4 Taking students attendance for each class
- 5 Supervising examinations

- 6 Undertaking any other tasks as may be assigned by UUM COB

July 2010 – Oct, 2010

Graduate Teaching Assistant in Research Methods for Operations Management and Industrial Engineering

College of Business (COB), University Utara Malaysia

Duties:

1. Teaching Undergraduates Students in Research Methods for Operations Management and Industrial Engineering
2. Assessing and advising students on their Academic work
3. Marking and recording Assignments, Quizzes, Presentations and Examinations
4. Taking students attendance for each class
5. Supervising examinations
6. Undertaking any other tasks as may be assigned by UUM COB

July 2009 – June, 2010

Graduate Teaching Assistant in Operations and Technology Management

College of Business (COB), University Utara Malaysia

Duties:

1. Teaching Masters Students in Operations and Technology Management
2. Assessing and advising students on their Academic work
3. Marking and recording Assignments, Quizzes, Presentations and Examination
4. Taking students attendance for each class
5. Supervising examinations
6. Undertaking any other tasks as may be assigned by UUM COB

August 2008 – June 2009

Customer Service Professional (Expatriate) Scicom (Nokia Careline) Sdn Bhd Malaysia

Duties:

1. Conducting marketing situational analysis

- for Africa and Middle East Market.
- 2. Conducting Market Research and Customer Satisfaction Survey through Telephone.
- 3. Handling customer technical issues on Nokia products.
- 4. Handling Customer enquiries and complaints.
- 5. Providing management with information on areas in need of improvement.
- 6. Connecting customers to company distributors and clients.
- 7. Educating customers on product quality and management policies.

Dec. 2007-June.2008

Head of Co-Curriculum, Mathematics and Accounting Teacher

Itqan Integrated Islamic Secondary and Primary School, Damansara Jaya, Kuala Lumpur, Malaysia.

Duties: Teaching Mathematics and Accounting to the Secondary school students and organizing/coordinating sports activities both at the Primary and the Secondary levels of Itqan.

Nov. 2005 – Oct. 2007

Teaching and Research Assistant in Marketing and Economics

Kulliyah of Economics and Management Sciences, International Islamic University Gombak Kuala Lumpur, Malaysia

Duties: Tutoring, Marking and recording Quizzes, gathering and documenting data for supervisors as requested (2005-07).

Jan. 2007-April.2007

Part-time Lecturer in Intensive English Programme

International University College of Technology
TWINTECH
Kuala Lumpur, Malaysia.

Duties: Teaching intermediate and advanced English, assessing and advising students.

April, 2007- Sept 2007
Cosway

Customer Service Officer and Sales Associate
Kavaq Business Intelligence Company, Wisma
Kuala Lumpur, Malaysia.

Duties:

- 1 Conducting Market Research and Customer Satisfaction Survey through Telephone.
- 2 Researching, Identifying and converting prospective potential Market into Company's customers.

July 2003 – June 2005

Part – Time Lecturer and Consultant in Marketing

G and M Marketing Consult, Kwara State, Nigeria
Duties: Teaching elementary, intermediate and advanced Marketing courses; assessing and advising students; and giving professional suggestion to company's situational Analysis (2003-05).

Dec 2000 – June 2005

Mobilization and Orientation Officer

National Orientation Agency Kwara, Nigeria.

Duties:

1. Mobilizing citizens to Government programmes and activities.
2. Orienting citizens on the need to support Government on its reform policies
3. Gathering and analyzing reports on citizens' reactions to government policies (2000-2005).

Dec. 1999-Nov 2000

Mathematics Teacher

Government Senior Science Secondary School
Gashua, Nigeria
(1 year compulsory National Service after Graduating in Nigeria)

Duties:

Teaching form 4 and 5 students General Mathematics in English; setting, marking and invigilating examinations; designing curriculum; collating and calculating final year results; attending departmental meetings (1999-2000).

Sept 1996-Oct 1997 **Assistant Mobilization and Orientation Officer**
National Orientation Agency Kwara, Nigeria.
Duties:
Mobilizing citizens to Government programmes and activities and orienting citizens on the need to support Government on its reform policies (1996-1997).

EDUCATION

- 2008 – 2011 **PhD Marketing**
University Utara, Malaysia
Thesis: "The impact of Customer Relationship Management on Caller Satisfaction in Customer Contact Centre: Evidence from Malaysia.
- 2008 - 2009 **Professional Certificate in International Contact Centre Management** (May, 2009)
Edexcel United Kingdom
- Nov, 05 – 07 **MSc Economics**
International Islamic University Gombak Kuala Lumpur, Malaysia
Courses included: Macroeconomics, Microeconomics, Econometrics, Islamic Economic Thought, Financial Economics, Portfolio Management, Islamic Banking System and Operations, Labour Economics, International Trade, Islamic Capital Market and Al Syasha Al Sharia.
Dissertation –
"Development of a Conceptual Framework for Measuring Customer Satisfactions in Banking Industry"
- June, 2003 **Associate Chartered Marketer**
Defunct Chartered Institute of Marketing of Nigeria, now National Institute of Marketing of Nigeria (Chartered).
Subjects included: Product Development, Sales Management, Marketing Cases and Problems, Strategic Marketing Management, Distribution and Logistic Management, Agricultural Marketing, Services Marketing and Marketing Communication.
- 2000-01 **Postgraduate Diploma in Financial Management (PGD)**
Adekunle Ajasin University, Akungba Akoko, Nigeria

Subjects included: Project and Investment Appraisal, Managerial Economics 1&2, Research Methodology, Financial Management 1&2, Quantitative Techniques etc.

Dissertation –

“The analysis of investment appraisal in a group of manufacturing companies “a case study of Doyin Groups of company Nigeria” (2001)”

1997-99

Higher National Diploma in Marketing; Upper Credit

Federal Polytechnic Offa, Nigeria

Subjects included: Marketing Research, Managerial Economics 1&2, Product Development 1&2, Sales Management 1&2, Marketing Cases and Problems, Strategic Marketing Management, Distribution and Logistic Management 1&2, Agricultural Marketing, Services Marketing and Marketing Communication, legal Aspect of Marketing, Management Accounting etc.

Dissertation –

“The effect of structural adjustment program on the procurement of raw materials in manufacturing companies “a case studies of Global soup and detergent Ilorin Kwara Nigeria” (1999).

1994-96

National Diploma in Business Studies

Federal Polytechnic Offa, Nigeria

Subjects included: Small Business and Entrepreneur, Principles of Public Administrations, Principles of Selling 1&2, Principles of Marketing 1&2, Research Methodology, Business Statistics, Business Law, Principles of Accounting 1&2, Principles of Purchasing, Introduction to English 1&2, Business methods, etc.

Final year Project –

“The role of industrial development centre in the promotion of small scale industries “a case studies of industrial development centre Ilorin Kwara state, Nigeria” (1996).

Nov, 1993

GCE O/Level: English, Mathematics, Economics, Government, Geography, Biology and Islamic Reveal Knowledge.

PRACTICAL SKILLS

- 1 Efficient in analysing score card reports for management decision making process.

- 2 Familiar with many units of contact centre Technologies, Processes and Human Development Programs.
- 3 Excellent in Reading, Writing and Speaking of English and Yoruba languages; familiar with some Hausa and Malay.
- 4 Familiar with the general procedures of organizing international academic conferences.
- 5 Efficient in dealing with customer enquiries and technical trouble shootings.
- 6 Effective in teaching Research Methods for Operation Management, Industrial Engineering, Operation and Technology Management, Marketing, Economics, Business Statistics, Conventional and Islamic Finance, Islamic Banking System and Operations at various levels, and to people of various backgrounds and age groups.
- 7 Excellent in interpersonal relationship; working independently and as a team member.
- 8 Developed editorial skills as **Editor** of *Association of Marketing Students "AMARKS"* (Dept. of Marketing, Federal Polytechnic Offa, Nigeria 1998-1999).
- 9 Computer literacy: Eviews, SPSS, AMOS (Structural Equation Modelling), Microsoft Word, Excel, use of the Internet as research tool, email etc.

MEMBERSHIP OF PROFESSIONAL QUALIFICATION

- 1 Associate Member, National Institute of Marketing of Nigeria "NIMN (Chartered).

INTERESTS: Keen interest in Academic Researches, Current affairs, listening to music, watching films, meeting people, playing table tennis and keeping fit.

REFEREES

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PUBLICATIONS FROM THE THESIS

Abdullateef, A. O., & Mokhtar, S. S. (2009). Determinant of Efficient Service Delivery and Caller Satisfaction: A Model of CRM Contact Center in Malaysia. Proceedings of the 2nd International Conference on Marketing and Retailing (Incomar), pp.18

Abdullateef, A. O., Mokhtar, S. S., & Yusoff, R. Z (2010a). Exploratory study of CRM Measurements in Malaysia Customer Contact Centers; Proceeding of The 2nd International Conference on Arab-Malaysian Islamic Global Business and Entrepreneurship (Amgbe).

Abdullateef, A. O., Mokhtar, S. S., & Yusoff, R. Z (2010b). Conceptual Model of the impacts of CRM Dimensions of Call Center Employees on Caller's First Call Resolution and Satisfaction; Proceeding of the 2nd International Conference on Technology and Operations Management (ICTOM).

Abdullateef, A. O., Mokhtar, S. S., & Yusoff, R. Z (2010c). Customer Relationship Management Dimensions and Employee Job Satisfaction: Development of a Conceptual Model; International Conference on Marketing (ICMAR).

Abdullateef, A. O., Mokhtar, S. S., & Yusoff, R. Z. (2010d). Drivers of Efficient

Service Delivery and Caller Satisfaction: A Model of CRM Customer Contact Centers in Malaysia: *International Journal of Management Studies*: 17(2), pp 25-42

Abdullateef, A. O., Mokhtar, S. S., & Yusoff, R. Z. (2010e). The Impact of CRM Dimensions on Call Center Performance: *International Journal of Computer Science and Network Security*, 10(12), pp 184-194

Abdullateef, A. O., Mokhtar, S. S., & Yusoff, R. Z. (2011). The mediating effects of First Call Resolution on Call Centers' Performance: *Journal of Database Marketing and Customer Strategy Management*, (Accepted for Publication in forthcoming issue, 2011).